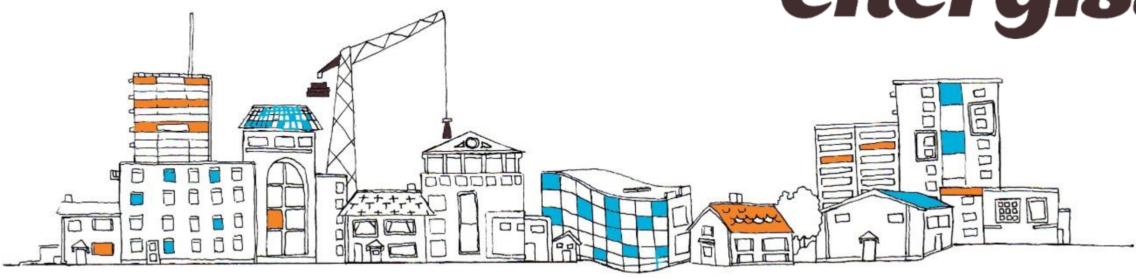
Energy Statement

Land on the North of Chequersfield, Welwyn Garden City

On behalf of Taylor Wimpey, North Thames

Revision B

Date: 17th May 2018



REVISION HISTORY

Revision	Issue Date	Description	Issued By	Checked By
A	20/07/2017	Original Document	DS	NS
B	17/05/2018	Dated Updated	SJC	-

Calculations contained within this report have been produced based on information supplied by the Client and the design team. Any alterations to the technical specification on which this report is based will invalidate its findings.

College Farm
Tetbury Road
Cirencester
GL7 6PX

Tel: 08458 386 387

info@energistuk.co.uk
www.energistuk.co.uk

CONTENTS

1. EXECUTIVE SUMMARY

This Energy Statement has been produced by Energist UK on behalf of Taylor Wimpey, North Thames ('the Applicant').

It will set out the measures planned by the Applicant to achieve energy reductions at the proposed development site: Land North of Chequersfield, Welwyn Garden City ('the Development') demonstrating compliance with:

i) National Planning Policy Framework.
ii) Approved Document Part L of the Building Regulations 2013.
iii) The local planning policy requirements for Welwyn Hatfield Borough Council to meet:

- SP10 – *"encourages development to maximise energy efficiency, incorporate renewable and/or low carbon technologies".*

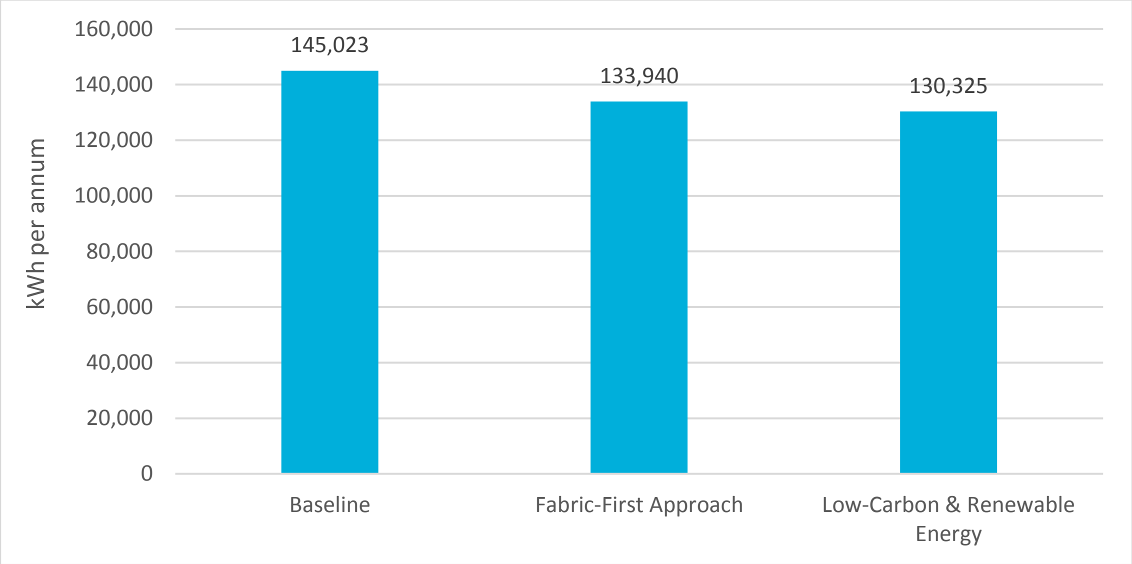
The Energy Statement concludes that the following combination of measures, summarised here in Table 1, will be incorporated into the Development demonstrating how the energy standard will be delivered by the Applicant.

Table 1: Measures incorporated to deliver the energy standard.

Fabric first: Demand-reduction measures	▪ Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. ▪ High-efficiency double-glazed windows throughout. ▪ Quality of build will be confirmed by achieving good air-tightness results throughout. ▪ Efficient-building services including high-efficiency heating systems. ▪ Low-energy lighting throughout the building. ▪ Taylor Wimpey Psi Values.
Renewable and low-carbon energy technologies	▪ A minimum of 4.5 kWp of PV – South East or South West facing on a 45° (Approx. 31.5m² to 36m²).

The impact of these design measures in terms of how the Applicant delivers the energy standard is illustrated in Figure 1 overleaf.

Figure 1: How the Development meets the energy standard.



The calculated reduction in energy and the percentage reduction in kWh over the ADL 2013 Baseline is demonstrated in Table 2.

Table 2: Energy in kWh and percentage reduction over ADL 2013.

	Energy in kWh	
	kWh per annum	% reduction
Target Energy in kWh: Compliant with ADL 2013	145,023	-
Fabric first: Demand-reduction measures	133,940	7.64%
Low-carbon and renewable energy	130,325	2.49%
Total savings	**14,698**	**10.13%**

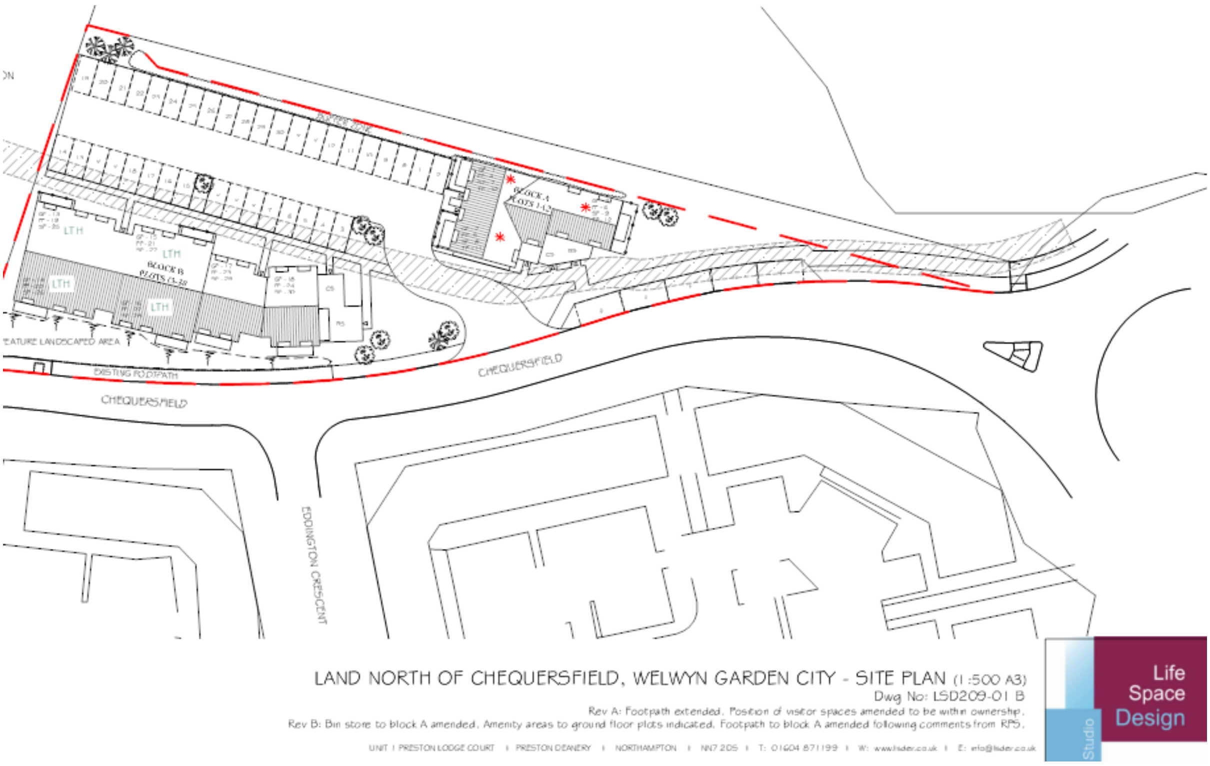
2. INTRODUCTION

2.1 Site Description

This Energy Statement has been prepared for the residential development at Land North of Chequersfield, Welwyn Garden City. This falls under the jurisdiction of Welwyn Hatfield Borough Council.

The Development consists of thirty apartments, ten affordable plots and twenty private plots.

Map 1: Site plan for Land North of Chequersfield, Welwyn Garden City.



Source: Life Space Design, July 2017

2.2 Purpose of the Energy Statement

This Statement sets out how the Applicant intends to meet:

i) National Planning Policy Framework.
ii) Approved Document Part L of the Building Regulations 2013.
iii) The local planning policy requirements for Welwyn Hatfield Borough Council to meet:

- SP10 – *"encourages development to maximise energy efficiency, incorporate renewable and/or low carbon technologies".*

For a detailed overview of the planning policy requirements specific to this development, refer to Appendix 2.

The way in which the Applicant meets the energy standard at Land North of Chequersfield, Welwyn Garden City will be set out in this Statement as follows:

- **Baseline energy demand**: The Development's Baseline in kWh will be calculated to establish the minimum on-site standard for compliance with ADL 2013.

- **Fabric first – reduced energy demand:** The Development's reduced energy in kWh will be calculated to explain how the Applicant's design specification will lead to a reduced energy demand and an improved fabric energy efficiency. The better the design of the building fabric in terms of, for example, insulation, air tightness and orientation to maximise solar gain, the less energy required to heat the dwelling and so the better the fabric energy efficiency.

- **Low-carbon and renewable energy:** Low-carbon and renewable energy technologies will be assessed for their suitability and viability in relation to the Development. Solutions will be put forward for the development and the resulting energy savings presented.

2.3 Methods

Energist UK has used SAP 2012 methodology to calculate energy demand for six dwellings. The data has been extrapolated to reflect more accurately the expected energy demand for all proposed dwellings included in the development proposals.

3. BASELINE ENERGY DEMAND

3.1 Introduction

In order to measure the effectiveness of demand-reduction measures, it is first necessary to calculate the baseline energy demand and this has been done using SAP 2012 methodology.

The resulting ADL 2013 Baseline for Land North of Chequersfield, Welwyn Garden City has been calculated using Part L model designs which have been applied to the Applicant's Development details. The baseline energy demand, represents the maximum kWh energy permitted for the Development in order to comply with ADL 2013.

3.2 The Development Baseline

The resulting Baseline, representing the total maximum energy in kWh permitted for the Development, has been calculated as 145,023 kWh per annum. To ensure compliance with ADL 2013, energy demand should not exceed this figure.

Table 3. Baseline design specification.

Element	Baseline Design Specification
Ground Floor U-Value (W/m².K)	0.13
External Wall U-Value (W/m².K)	0.18
Party Wall U-Value (W/m².K)	0 (fully filled and sealed)
Roof – insulated at ceiling U-Value (W/m².K)	0.13
Roof – insulated at slope U-Value (W/m².K)	0.13
Roof – flat, U-Value (W/m².K)	0.13
Glazing U-Value, including frame (W/m².K)	1.4
Door U-Value (W/m².K)	1.2
Design Air Permeability	5
Space Heating	Mains Gas
Heating Controls	Heating System Controls
Domestic Hot Water	Mains Gas
Ventilation	Natural ventilation with intermittent extract fans
Low Energy Lighting	100%
Thermal Bridging	Appendix R values

4. FABRIC-FIRST APPROACH - REDUCED ENERGY DEMAND

4.1 Introduction

Many Local Planning Authorities are now recognising the benefits of a fabric-first approach, where the lifetime energy consumption of a building takes precedence over the use of bolt-on renewable energy technologies.

It is clear that the fabric-first approach can create buildings with a very comfortable living and working environment. The internal temperature is consistent and fuel bills are kept to a minimum. One key advantage of a fabric-first approach is that it does not require changes to the behavioural patterns of the occupants and, as such, a building designed using a fabric-first approach will often perform more effectively once completed than a building that incorporates a low-carbon or renewable-energy technology that requires behavioural change (e.g. solar thermal). This becomes an increasingly important consideration as energy costs rise and the issue of fuel poverty becomes commonplace.

Energist UK has considered a fabric-first approach as the priority solution for this Development.

4.2 The Development - Reduced Energy Demand

The Applicant will integrate the following design measures to reduce energy demand:

- Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs.
- High-efficiency double-glazed windows throughout.
- Quality of build will be confirmed by achieving good air-tightness results throughout.
- Efficient-building services including high-efficiency heating systems.
- Low-energy lighting throughout the building.
- Taylor Wimpey Psi Values.

The Applicant's design specification and intended demand-reduction measures for the Development have been modelled using the same SAP 2012 methodology as before. This allows us to assess the effectiveness of demand-reduction measures as a percentage reduction in energy over the Baseline.

The total calculated energy for Land North of Chequersfield, Welwyn Garden City is 133,940 kWh per annum, which is a reduction of 7.64% or 11,083 kWh per annum over the Baseline. Refer to Appendix 3 for a SAP Results and Table 4 for the fabric-first design specification.

Table 4. The fabric-first design specification at Land North of Chequersfield, Welwyn Garden City.

Element	Fabric-First Design Specification
Ground Floor U-Value (W/m^2.K)	0.15
External Wall U-Value (W/m^2.K)	0.25
Corridor & Dormer Wall U-Value (W/m^2.K)	0.30
Party Wall U-Value (W/m^2.K)	0 (fully filled and sealed)
Roof – insulated at ceiling U-Value (W/m^2.K)	0.11
Roof – insulated at slope U-Value (W/m^2.K)	0.20
Roof – Dormer U-Value (W/m^2.K)	0.20
Glazing U-Value – including Frame (W/m^2.K)	1.4
Door U-Value (W/m^2.K)	1.4
Design Air Permeability	5.0
Space Heating	Mains Gas Combi Ideal ESP 1 35
Heating Controls	Programmer, Room thermostat, TRVs & Delayed Start Thermostat to the flats.
Domestic Hot Water	Combi Boilers to flats
Ventilation	Greenwood Unity System.
Low Energy Lighting	100%
Thermal Bridging	Taylor Wimpey Psi Values

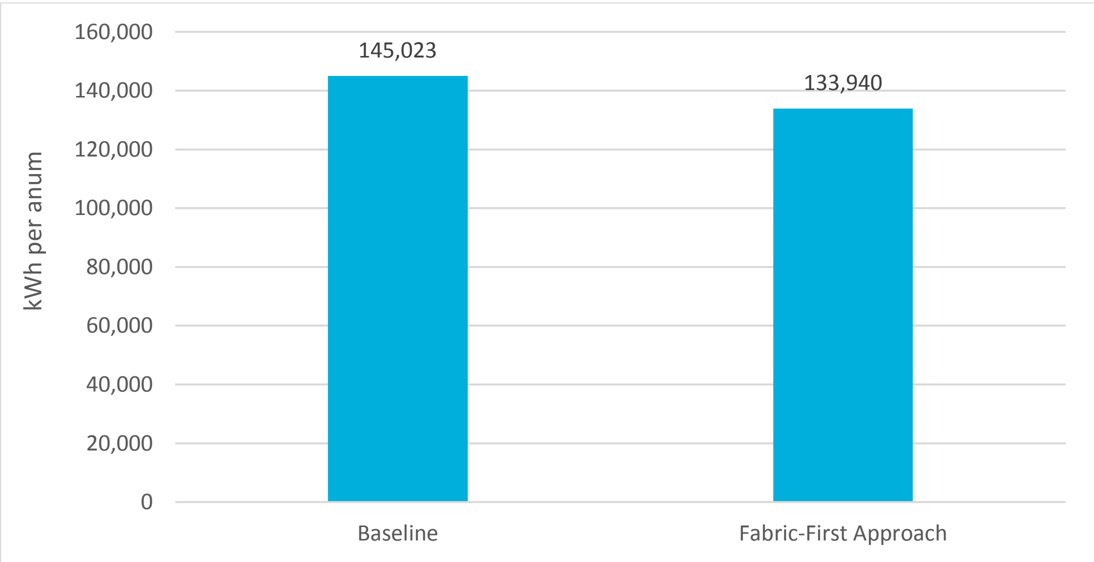
4.3 Conclusion

By incorporating sustainable design and energy-reduction design measures at Land North of Chequersfield, Welwyn Garden City, the Applicant will reduce energy by 7.64% over the Baseline for ADL 2013. This is illustrated in Table 5 and in Figure 2 below.

Table 5: The baseline and fabric-first, demand-reduction measures.

	Energy in kWh	
	kWh per annum	% reduction
Target Energy in kWh: Compliant with ADL 2013	145,023	-
Fabric first: Demand-reduction measures	133,940	7.64%

Figure 2: Baseline and fabric-first summary.



5. LOW-CARBON AND RENEWABLE ENERGY

5.1 Introduction

The Applicant adopts a fabric-first approach as the priority solution for this Development and steps have been taken to reduce energy demand through high-quality sustainable design. The planned integration of efficient building fabric and building services has been modelled and is predicted to lead to an enhancement over Part L of the Building Regulations 2013.

The low-carbon and renewable energy solutions applicable to this development scheme are assessed and potentially-viable solutions recorded.

Viability of the following low-carbon and renewable energy technologies have been considered:

- Wind
- Solar
- Aerothermal
- Geothermal
- Biomass

5.2 Wind	*The ability to generate electricity via a turbine or similar device which harnesses natural wind energy. This could be considered as an onsite solution to reducing energy (turbines included within the development), or offsite (investing financially into a nearby wind farm).*
Installation considerations	▪ Wind turbines come in a variety of sizes and shapes. Turbines of 1 Kw can be installed to single house and large-scale turbines of 1-2 MW can be installed on a development to generate electricity to multiple dwellings and other buildings. In both instances the electricity generated can be used on site or exported to the grid. Vertical- or horizontal-axis turbines are available. ▪ A roof-mounted 1 kW micro wind system costs up to £3,000. A 2.5 kW pole-mounted system costs between £9,900 and £19,000. A 6 kW pole-mounted system costs between £21,000 and £30,000 (taken from the Energy Saving Trust, TBC by supplier) ▪ Local average wind speed is a determining factor. A minimum average wind speed of 6 m/s is required. ▪ Noise considerations can be an issue dependent on density and build-up of the surrounding area. ▪ Buildings in the immediate area can disrupt wind speed and reduce performance of the system. ▪ Planning permission will be required along with suitable space to site the turbine, whether ground installed or roof mounted.
Advantages	▪ Generation of clean electricity which can be exported to the grid or used onsite. ▪ Can benefit from the Feed in Tariff, reducing payback costs.
Disadvantages	▪ Planning restrictions and local climate often limit installation opportunities. ▪ Annual maintenance required. ▪ High initial capital cost. It is usual for an investor to consider a series of turbines to make the investment financially sound.
Development feasibility	▪ Installing a large turbine in an area such as this is not considered to be appropriate due to its appearance and physical impact on the built-up environment. Residents' and neighbours' concerns may include the look of the turbine, the

hum of the generator and the possibility of stroboscopic shadowing from the blades on homes.

- Wind speed has been checked for the development scheme using the NOABL wind map: http://www.rensmart.com/Weather/BERR. The wind speed at ten metres for the development scheme is 4.8 metres per second (m/s) which is below the minimum of 5 m/s and threshold for technical viability.

- Typical payback times for a single turbine are expected to be greater than 15 years which means that the cost of installing and maintaining a single wind turbine is not considered a commercially-viable option.

5.3 Solar PV and Solar Thermal

The ability to generate energy (either electricity, hot water or a combination of the two) through harnessing natural solar energy. This could include the use of solar thermal panels, photovoltaic (PV) panels, or a combined solution. PV panels, similarly to turbines, can be considered both on and offsite.

Solar Photovoltaics convert solar radiation into electricity which can be used on site or exported to the national grid.

Solar Thermal generates domestic hot water from the sun's radiation. Glycol circulates within either flat plate or evacuated tube panels, absorbing heat from the sun, and transferring this energy to a water cylinder. A well designed solar thermal system will account for 50-60% of a dwelling's annual hot water demand. Sizing the system to meet a higher demand will lead to excess heat generation in the summer months, and overheating of the system.

Installation considerations

- Operate most efficiently on a south-facing sloping roof (between 30 and 45-degree pitch.)
- Shading must be minimal (one shaded panel can impact the output of the rest of the array.)
- Panels must not be laid horizontally on a flat roof as they will not self-clean. Panels will therefore need to be installed at an angle and with appropriate space between them, to avoid over-shading.
- Large arrays may require upgrades to substations if exporting electricity to the grid.

	▪ Local planning requirements may restrict installation of panels on certain elevations. ▪ Installation must take into account pitch and fall of the roof, along with any additional plant on the roof to ensure there is sufficient room. ▪ The average domestic solar PV system is 4kWp and costs £5,000 - £8,000 (including VAT at 5 per cent) - (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Relatively straightforward installation, connection to landlord's supply and metering. ▪ Linear improvement in performance as more panels are installed. ▪ Maintenance free. ▪ Installation costs are continually reducing. ▪ Can benefit from the Feed in Tariff to improve financial payback.
Disadvantages	▪ Not appropriate for high-rise developments, due to lack of roof space in relation to total floor area. ▪ With Solar Thermal, performance is limited by the hot water demand of the building – system oversizing will lead to overheating.
Development feasibility ✓	▪ The suitability of Solar panels has been considered for this Development and are concluded as a technically-viable option. ▪ There are potential areas of roof space suitable for the positioning of unshaded Solar PV arrays. ▪ The Development is not on land which is protected or listed, so it is considered that Solar panels would not have a negative impact on the local historical environment or the aesthetics of the area. ▪ The occupants may be entitled to claim the Feed-In-Tariff for any energy which is generated. If solar thermal panels were to be used, the occupants would see a reduction in hot water bills.

5.4 Aerothermal	*The transfer of latent heat in the atmosphere to a compressed refrigerant gas to warm the water in a heating system. This includes air to water heat pumps and air conditioning systems.* Air Source Heat Pumps (ASHPs) extract heat from the external air and condense this energy to heat a smaller space within a dwelling or non-domestic building. A pump circulates a refrigerant through a coil to absorb energy from the air. This refrigerant is then compressed to raise its temperature which can then be used for space heating and domestic hot water. They can feed either low-temperature radiators or underfloor heating and often have electric immersion heater back-up for the winter months.
Installation Considerations	▪ ASHPs operate effectively in buildings with a low energy demand, as they emit low levels of energy suitable for maintaining rather than dramatically increasing internal temperatures. It is therefore vital that the dwelling has a low heating demand to ensure the system can provide appropriate space-heating capability. ▪ Underfloor heating will give the best performance but oversized radiators can also be used. ▪ Immersion heater back-up required to ensure appropriate Domestic Hot Water (DHW) temperature in winter months. ▪ Noise from the external unit can limit areas for installation. ▪ £7,000-£11,000 per dwelling (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Air source systems are a good alternative solution to providing heating and hot water to well-insulated, low heat loss dwellings. ▪ They require additional space when compared to a gas boiler. Space for an external unit is needed, as is space for the hot water cylinder and internal pump. ▪ Heat pumps are generally quiet to run, however if a collection of pumps were used, this could generate a noticeable hum while in operation. ▪ Running costs between heat pumps and modern gas boilers are comparable.
	▪ Residents need to be made aware of the most efficient way of using a heat pump; as the low flow rates used by such a system

Disadvantages	means that room temperature cannot be changed as reactively as a conventional gas or oil boiler system. ▪ Will not perform well in homes that are left unoccupied and unheated for a long period of time. ▪ Back-up immersion heating can drastically increase running costs. ▪ Noise and aesthetic considerations limit installation opportunities.
Development feasibility ✓	▪ ASHPs are considered a technically-viable option for this development scheme. ▪ The costs of installing an ASHP, compared to the costs of installing an A-rated boiler, are substantially more which means there is a capital-cost implication to consider.

5.5 Geothermal	*The transfer of latent heat from the ground to a compressed refrigerant gas to warm the water in a heating system. This includes ground source heat pumps. Heat can be collected through the use of either horizontally laid or vertically installed coils.* Ground Source Heat Pumps (GSHPs) operate on the same principle as an Air Source Heat Pump (ASHP) in that they extract heat from a source (in this instance the ground) and compress this energy to increase temperature for space heating and hot water. Pipework is installed into the ground, either through coils or in bore holes and piles, circulating a mix of water and antifreeze to extract energy from the ground, where the year-round temperature is relatively consistent (approx. 10℃ at 4 metres depth). This leads to a reliable source of heat for the building. Again, an electrically powered pump circulates the liquid and powers the compressor, however annual efficiencies for GSHPs tend to be higher than those of ASHPs.
Installation considerations	▪ Require appropriate ground conditions to sink piles/bore holes or excavate for coils (which also require a large area of land.) ▪ Decision between coils or piles can lead to significant extra cost.

	▪ Need to consider whether low temperature output is fed through underfloor heating (most efficient) or oversized radiators. ▪ Similar to ASHPs, perform best in well-insulated buildings with a low heating demand. ▪ Electric immersion heater required for winter use. ▪ £11,000-£15,000 per dwelling dependent on the size of the system (taken from the Energy Saving Trust, TBC by supplier.)
Advantages	▪ Perform well in well-insulated buildings, with limited heating demand. ▪ More efficient than ASHPs.
Disadvantages	▪ The coils can be damaged by natural earthworks and by intensive gardening practices – occupants would need to be aware of the location of the coils for this system, and how to operate the system efficiently. Coils may also be damaged within the dwelling where the circuit is connected to the internal unit. ▪ Will not perform well in buildings that are left unoccupied and unheated for a long period of time. ▪ Back up immersion heating can drastically increase running costs. ▪ Large area of ground needed for coil installation.
Development feasibility ✗	▪ GSHPs are considered a technically-viable option for this development scheme as there are no physical constraints in terms of ground conditions and area available for installation. ▪ The capital installation cost would, however, be high which leads us to the conclusion that GSHPs would not be a commercially-viable option for this development scheme.

5.6 Biomass

Providing a heating system fuelled by plant based materials such as wood, crops or food waste.

Biomass boilers generate heat for space heating and domestic hot water through the combustion of biofuels, such as woodchip, wood pellets or potentially biofuel or bio diesel. Biomass is considered to

	be virtually zero carbon. They can be used on an individual scale or for multiple dwellings as part of a district-heating network. A back-up heat source should be provided as consistent delivery of fuel is necessary for continued operation.
Installation considerations	▪ Biomass boilers are larger than conventional gas-fired boilers and also require what can be significant storage space for the fuel source. This needs to be considered at planning stage to ensure an appropriate plant room can be provided. ▪ Flue required to expel exhaust gases – design needs to be in line with the requirements of the Building Regulations. ▪ Need to consider whether fuel deliveries will be reliable and consistent to the location of the site (especially relevant in rural areas) and whether the plant room can be easily accessed by the delivery vehicle. ▪ £9,000-£21,000 per dwelling dependent on size (taken from Energy Saving Trust, TBC by Supplier).
Advantages	▪ Considerable reduction in carbon.
Disadvantages	▪ Limited reduction in running costs compared to A-rated gas boilers, but at a substantially higher up-front cost. ▪ Plant room space required for boiler and storage. ▪ Dependent on consistent delivery of fuel. ▪ Ongoing maintenance costs (need to be cleaned regularly to remove ash.)
Development Feasibility ✗	▪ Biomass is considered a technically-viable option for this development scheme as there are no apparent physical constraints on site in terms of installing biomass boilers or storing a sufficient supply. ▪ There are, however, concerns regarding a sustainable supply of biomass to the site. ▪ The capital installation cost would, however, be high which leads us to the conclusion that biomass would not be a commercially-viable option for this development scheme.

5.7 Conclusion

The following low-carbon and renewable energy technologies, summarised here in Table 6, are considered potentially-viable options for the residential development scheme at Land North of Chequersfield, Welwyn Garden City.

Table 6: Summary of Feasibility for Land North of Chequersfield, Welwyn Garden City.

✓	▪ Solar ▪ Solar Thermal ▪ Aerothermal
✗	▪ Wind ▪ Aerothermal ▪ Geothermal ▪ Biomass

The Applicant's preference is to use photovoltaic panels. A minimum of 4.5 kWp of PV, South East or South West facing on a 45° pitch will be installed. Approximately. 31.5m² to 36m², or approximately 18 panels. Refer to Appendix 2 for a PV location plan.

6. CONCLUSIONS AND RECOMMENDATIONS

The Applicant demonstrates commitment to delivering the energy standard at Land North of Chequersfield, Welwyn Garden City as follows:

- The Development has been designed to generate a total reduction in energy of 10.13% over the TER ADL 2013.

- This energy standard is primarily delivered through fabric-first approach to design.

A combination of demand-reduction measures, energy-efficiency measures and low-carbon and renewable energy will deliver the Applicant's target for on-site reduction in energy.

The following measures, summarised here in Table 7, are incorporated in the development proposals.

Table 7. Measures incorporated to deliver the energy standard.

Fabric first: Demand-reduction measures	▪ Energy-efficient building fabric and insulation to all heat loss floors, walls and roofs. ▪ High-efficiency double-glazed windows throughout. ▪ Quality of build will be confirmed by achieving good air-tightness results throughout. ▪ Efficient-building services including high-efficiency heating systems. ▪ Low-energy lighting throughout the building. ▪ Taylor Wimpey Psi Values.
Renewable and low-carbon energy technologies	▪ A minimum of 4.5 kWp of PV – South East or South West facing on a 45° (Approx. 31.5m² to 36m²).

The way in which these design measures deliver the Applicant's commitment to the energy standard is illustrated in Figure 3 and Table 8 overleaf.

Figure 3: How the Development delivers the energy standard.

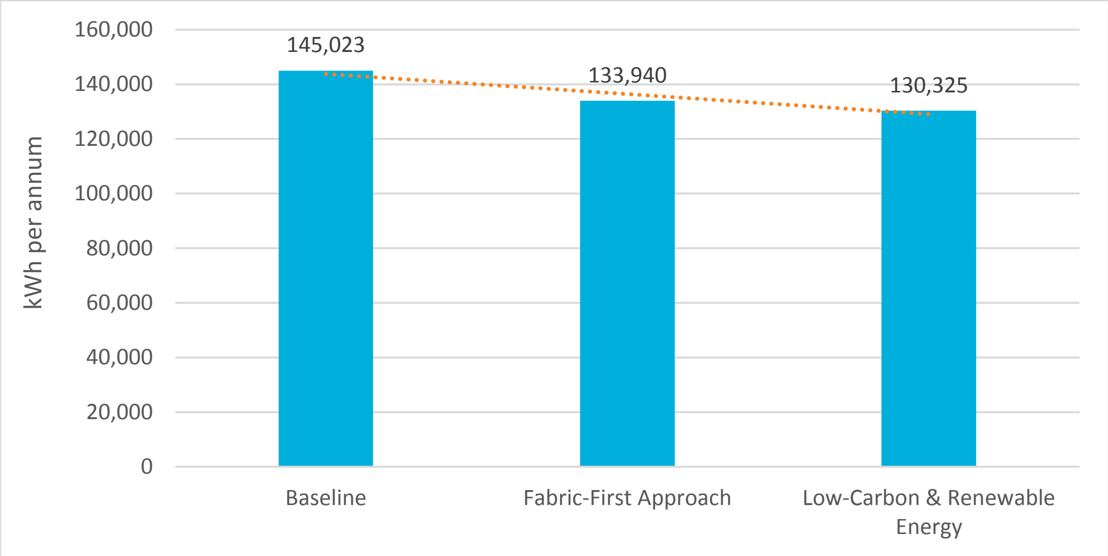


Table 8: Energy in kWh and percentage reduction over ADL 2013.

	Energy in kWh	
	kWh per annum	% reduction
Target Energy in kWh: Compliant with ADL 2013	145,023	-
Fabric first: Demand-reduction measures	133,940	7.64%
Low-carbon and renewable energy	130,325	2.49%
Total savings	**14,698**	**10.13%**

7. APPENDICES

APPENDIX 1: LIST OF ABBREVIATIONS

ADL 2013	Approved Document Part L of Buildings Regulations 2013
ASHP	Air Source Heat Pump
CHP	Combined Heat & Power
DER	Dwelling Emission Rate
DHN	District Heat Network
DHW	Domestic Hot Water
ESCO	Energy Services Company
GSHP	Ground Source Heat Pump
LPA	Local Planning Authority
PV	Photovoltaics
SAP	Standard Assessment Procedure
TER	Target Emission Rate

APPENDIX 2: PLANNING POLICY AND DESIGN GUIDANCE

The Climate Change Act (2008)

Passed in November 2008, the Climate Change Act mandated that the UK would reduce emissions of six key greenhouse gases, including Carbon Dioxide, by 80% by 2050.

As a consequence, the reduction of carbon dioxide emissions is at the forefront of National, Regional and Local Planning Policy, along with continuing step changes in performance introduced by the Building Regulations Approved Document L (2013).

Approved Document L (2013)

This development is subject to the requirements of Approved Document L (2013). ADL 2013 represented an approximate reduction of 6% in the Target Emission Rate (Kg/CO_2/sqm per annum) over the requirements of Approved Document L (2010) for residential development and an aggregate 9% reduction for non-residential development. ADL (2013) also sees the introduction of a Fabric Energy Efficiency Target, a measure of heating demand (kW hrs/sqm per annum) to ensure new-build dwellings with low-carbon heating systems still meet satisfactory energy-efficiency standards.

National Policy

The National Planning Policy Framework encourages Local Planning Authorities to "Have a positive strategy to promote energy from renewable and low-carbon sources" (NPPF paragraph 97), whilst "Ensuring that the adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts". This suggests that although LPAs should encourage renewable technology, the merits of such should be assessed on a site-by-site basis.

The NPPF also requires that policy-making and planning obligations do not threaten the viability of a development, by maintaining competitive returns for developers and landowners alike. In this respect flexibility is encouraged by LPAs to ensure sustainability standards can be met without incurring unreasonable development costs.

Welwyn Hatfield Draft local plan (August 2016)

Policy SP10 Sustainable Design and Construction

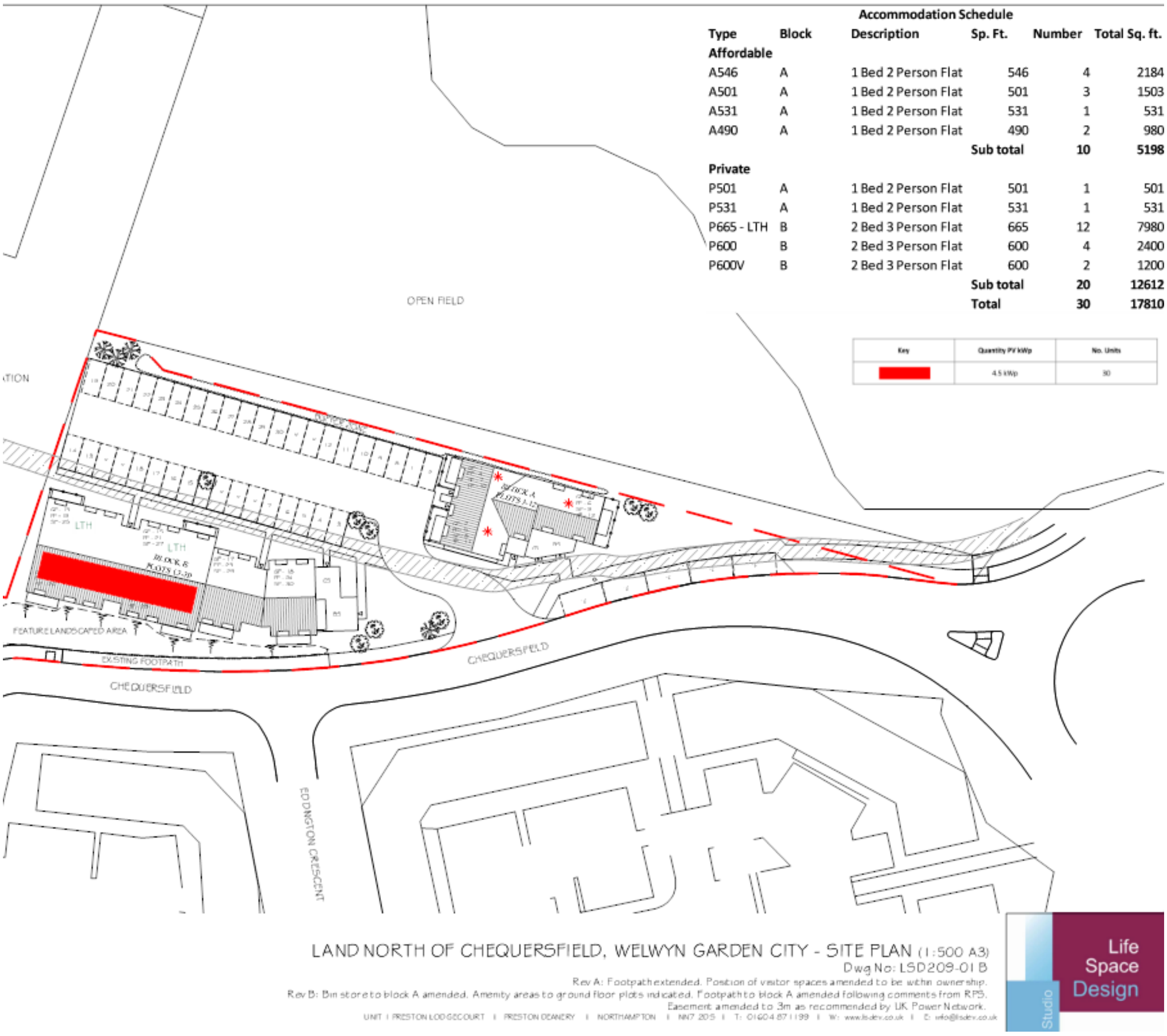
Development needs to be responsive and resilient to environmental risks and climate change, and seek to protect and enhance other aspects of the natural environment. This

policy encourages development to re-use land and buildings; maximise energy efficiency; incorporate water conservation measures and renewable and/or low carbon technologies (such as solar panels); enhance biodiversity (the variety of plant and animal life) by incorporating new and existing habitat and landscaping into the layout and design of proposals; and create space for growing food, both at a building and wider community scale. *Policies SADM13 Sustainability requirements and SADM14 Flood Risk and Surface Water Management set out criteria which proposals would be expected to meet.*
The Housing Standards Review and implications on Local Planning Policy
On March 25th 2015 the Government confirmed its policy to limit energy-efficiency targets that can be imposed on a development as a result of the Housing Standards Review. New developments should not be conditioned to achieve a reduction in Carbon Emissions exceeding a 19% improvement over the requirements of Approved Document L (2013) – the equivalent energy performance of a Code for Sustainable Homes Level 4 dwelling. In addition the Government confirmed that the Code for Sustainable Homes is no longer an applicable standard for planning permissions granted on or after March 26th 2015. If a Local Planning Authority has an existing policy requirement for the CSH it may still condition the Ene 1 and Wat 1 requirements for CSH Level 4, but cannot require assessment against the remaining categories and full CSH Certification. Sites with planning permission granted prior to March 25th 2015 can still be assessed and certified against the Code for Sustainable Homes, where there is a requirement to do so (known as legacy sites). A CSH requirement can also apply where a previously approved Outline Planning Permission has been granted prior to March 25th 2015.

APPENDIX 3: SAP RESULTS.

Dwelling Type	Target Energy	Fabric-First	Low-Carbon & Renewable
Flat G 1 - Small Block	14,001	12,936	9,322
Flat Top 2 - Small Block	41,415	37,303	37,303
Flat G 15 - Large Block	28,983	26,969	26,969
Flat Mid 20 - Large Block	13,360	12,055	12,055
Flat Mid 21 - Large Block	13,169	11,728	11,728
Flat Top 30 - Large Block	34,095	32,948	32,948
Total Energy kWh	**145,023**	**133,940**	**130,325**

APPENDIX 4: PV LOCATION PLAN.



Accommodation Schedule

Type	Block	Description	Sp. Ft.	Number	Total Sq. ft.
Affordable					
A546	A	1 Bed 2 Person Flat	546	4	2184
A501	A	1 Bed 2 Person Flat	501	3	1503
A531	A	1 Bed 2 Person Flat	531	1	531
A490	A	1 Bed 2 Person Flat	490	2	980
			Sub total	**10**	**5198**
Private					
P501	A	1 Bed 2 Person Flat	501	1	501
P531	A	1 Bed 2 Person Flat	531	1	531
P665 - LTH	B	2 Bed 3 Person Flat	665	12	7980
P600	B	2 Bed 3 Person Flat	600	4	2400
P600V	B	2 Bed 3 Person Flat	600	2	1200
			Sub total	**20**	**12612**
			Total	**30**	**17810**

Key	Quantity PV kWp	No. Units
	4.5 kWp	30