Energy Statement

St Georges Country House Hotel, Perranporth, TR6 0ED

On behalf of A-Tec Design

23rd January 2024
Revision: 03

Revision History

Revision	Issue Date	Description	Issued By	Checked By
R00	02/08/2023	Initial Document	TW	JA
R01	21/08/2023	Draft Issue	ES	JA
R02	13/09/2023	Final Issue	ES	DS
R03	23/01/2024	Minor updates to drawings	DS	

All advice provided by Energist regarding the performance of materials is limited solely to the purposes of demonstrating compliance with the Energy Statement. The performance of materials under other criteria, including but not limited to fire, structural, acoustics are not considered in our advice. It is the responsibility of the client to ensure the wider suitability of materials specified in our assessments.

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.

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1. Executive Summary

This Energy Statement has been produced by Energist UK on behalf of A-Tec Design ('the Applicant').

It will set out the measures planned by the Applicant to achieve energy reductions at the proposed development site: St Georges Country House Hotel, Perranporth ('the Development') demonstrating compliance with:

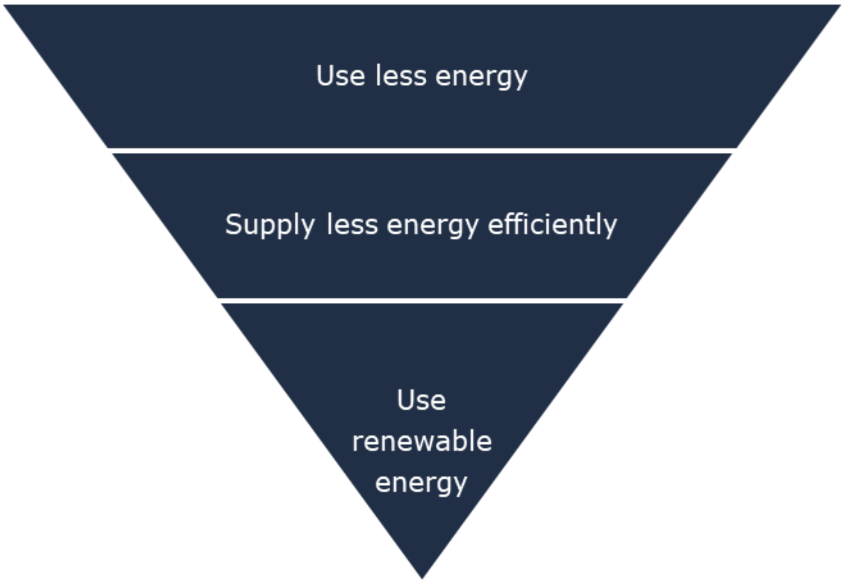
i) National Planning Policy Framework.
ii) Approved Document Part L of the Building Regulations 2021
iii) The local planning Policy requirements for Cornwall Council to meet:

- Policy 13: Development Standards
- Policy 14: Renewable & low carbon energy

iv) Policy SEC1 part 2b: Renewable Energy Off-setting Framework

(Please refer to Appendix 2 for full policy details)

The Energy Statement sets out how design measures will be incorporated as part of the Development, aligning with the principles of the energy hierarchy.



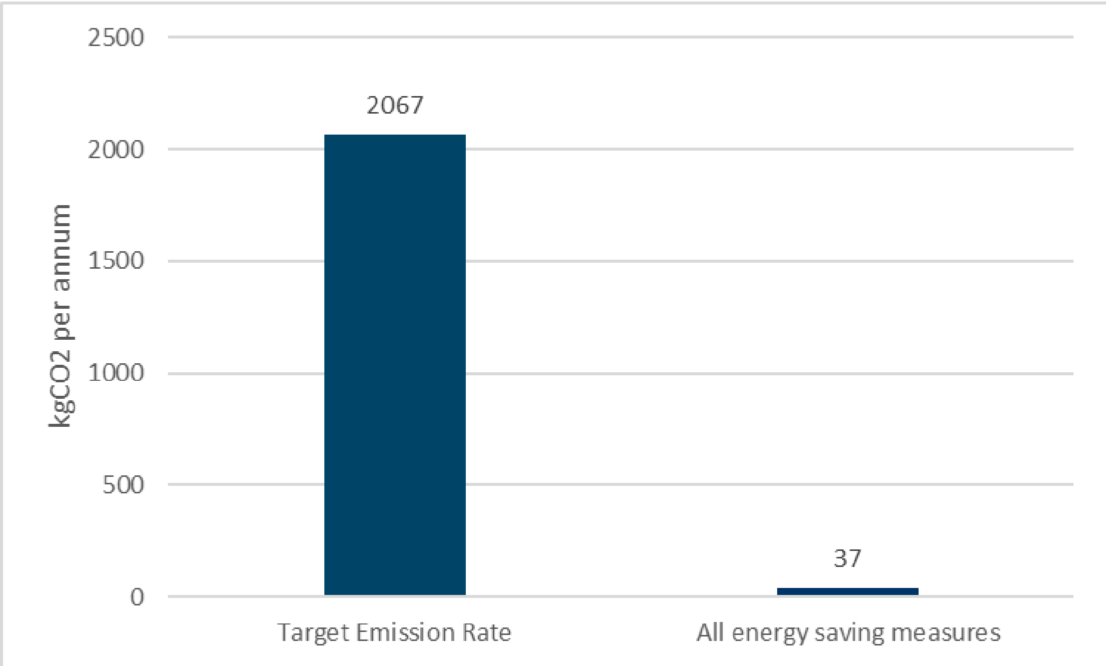
The Energy Statement concludes that the following combination of measures, summarised overleaf in Table 1, will be incorporated into the Development demonstrating how the energy standard will be delivered by the Applicant.

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 development.
Low-carbon & renewable energy	• High efficiency ASHP to provide heating and DHW to the proposed residential units. • PV array of 5.1kWp.

The impact of these design measures in terms of how the Applicant delivers the energy standard is illustrated in Figures 1:

Figure 1: How the Development meets the energy standard ADL2021



The calculated reduction in CO_2 emissions and the percentage reduction in CO_2 over ADL 2021 is demonstrated in Tables 2.

Table 2: CO_2 emissions and percentage reduction over ADL2021

	CO_2 emissions	
	Kg/CO_2 per annum	% reduction
Target Emission Rate: Compliant with ADL 2021	2,067	-
All energy saving measures	37	98.2%
Total savings	**2,030**	**98.2%**

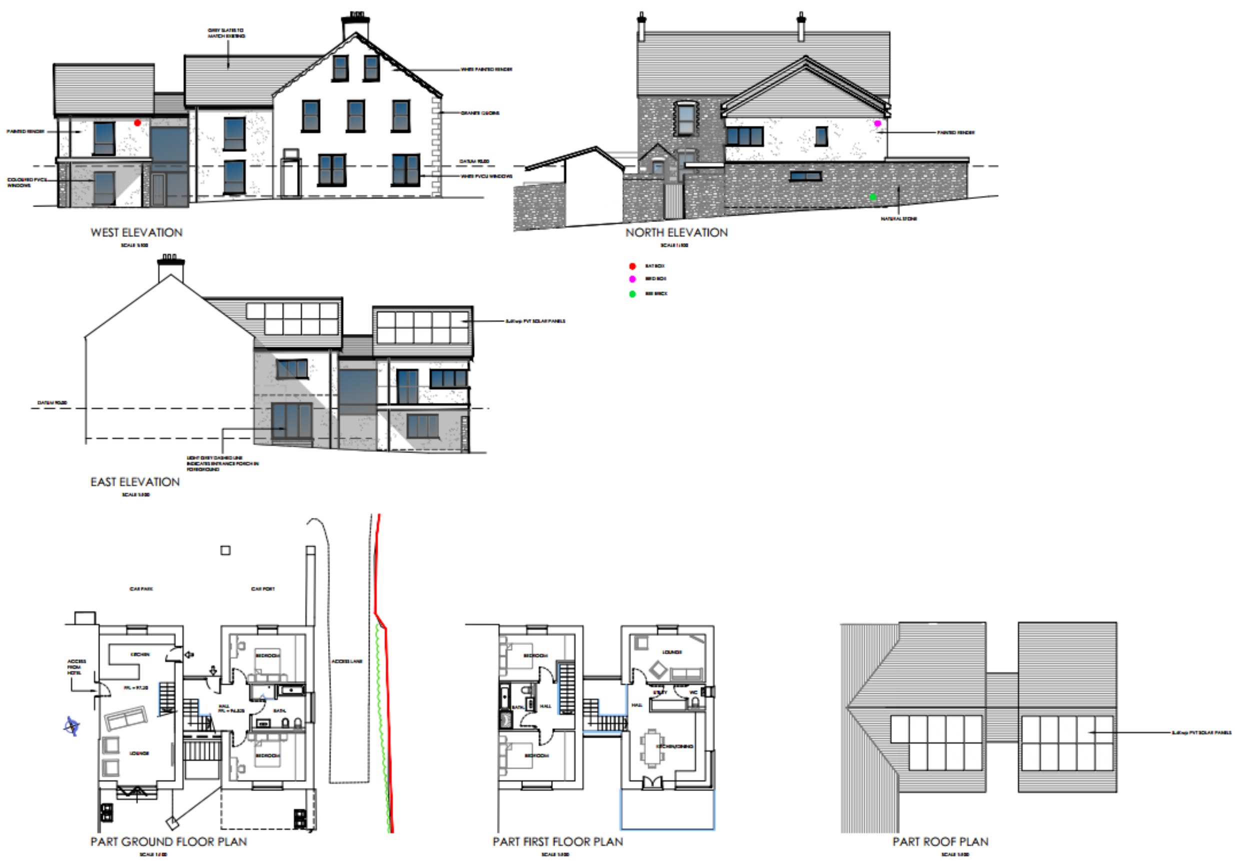
2. Introduction

2.1 Site Description

This Energy Statement has been prepared for the residential development at St Georges Country House Hotel, Perranporth. This falls under the jurisdiction of Cornwall Council.

The proposed Development consists of 2no, two bed, new build residential units, across over 2 floors.

Map 1: Site layout for St Georges Country House Hotel, Perranporth.



Source: A-Tec Design (Dwg no 12 Rev A)

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 2021
III. The local planning Policy requirements for Cornwall Council to meet:

   - Policy 13: Development Standards
   - Policy 14: Renewable & low carbon energy

IV. Policy SEC1 part 2b: Renewable Energy Off-setting Framework

(Please refer to Appendix 2 for full policy details)

The way in which the Applicant meets the energy standard at St Georges Country House Hotel, Perranporth, will be set out in this Statement as follows:

- **Baseline energy demand**: The Development's Target Emission Rate (TER) will be calculated to establish the minimum on-site standard for compliance with ADL 2021.

- **Fabric first – reduced energy demand:** The Development's Dwelling Emission Rate (DER) 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 CO_2 emission savings presented.

2.3 Methods

Energist UK has used SAP 10.2 methodology to calculate the energy demand for both residential units.

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 SAP10.2 methodology. This can also be referred to as the Target Emission Rate (TER)

The resulting ADL 2021 Baseline for St Georges Country House Hotel, Perranporth 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 $kgCO^2$ emissions permitted for the Development in order to comply with ADL 2021.

3.2 The Development Baseline

The resulting **TER** for the proposed residential units, representing the total maximum CO_2 emissions permitted for the Development, has been calculated as **2,077 kg/CO_2 per annum**. To ensure compliance with ADL2021, CO_2 emissions should not exceed this figure.

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 behavioral 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 behavioral 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 as it can be shown that the energy standard required to achieve the Target Emission Rate of Approved Document L (2021) at this St Georges Country House Hotel, Perranporth development can be exceeded through the use of efficient building fabric and building services.

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.

The Applicant's design specification and intended demand-reduction measures for the Development have been modelled using the same SAP10.2 methodology as before.

Table 3. The fabric-first design specification at St Georges Country House Hotel, Perranporth.

Element	L2A Design Specification
Ground Floor U-Value (W/m^2.K)	0.12
External Wall U-Value (W/m^2.K)	0.18
Party Wall U-Value (W/m^2.K)	-
Roof – insulated at ceiling level U-Value (W/m^2.K)	0.11
Glazing U-Value – including Frame (W/m^2.K)	1.4
Design Air Permeability	3.0
Space Heating	ASHP
Heating Controls	Zoned controls
Secondary heating	N/A
Domestic Hot Water	ASHP
Ventilation	Natural
Low Energy Lighting	100% low energy
Thermal Bridging	Government Approved Details

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 2021.

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 carbon emissions (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 consider 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 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 commercial viability of Solar PV or Solar Thermal would need to be fully explored if considered part of an Energy Strategy as the economical investment would

	need to be justified by the return on the Applicant's investment.
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. • Running costs between heat pumps and modern gas boilers are comparable.

	• Heat pumps are a low energy heating solution and are encouraged as part of the Future Homes Standard package of regulations changes which are being implemented in England over the next few years.
Disadvantages	• 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 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 higher which means there is a capital-cost implication to consider. • Additional space is required for larger internal units, incorporating hot water cylinders, and also outside to install the condenser unit. • For this reason, ASHPs may not be considered viable on all plots, however the energy saving advantages of heat pumps mean the required sitewide reduction can be achieved without including ASHP to every plot.

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 fueled 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 CO_2 emissions.

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 Viable Technologies

The following low-carbon and renewable energy technologies, summarised here in Table 4, are considered potentially viable options for the residential development St Georges Country House Hotel, Perranporth.

Table 4: Summary of Feasibility for St Georges Country House Hotel, Perranporth.

✓	Solar Thermal Solar PV Air Source Heat Pumps
✗	Wind Turbines Biomass Boilers Ground Source Heat Pumps

The Applicant has opted to install ASHP technology to provide heating and DHW across the site as well as a total PV array of:

- 5.1 kWp across the residential units

6. Conclusions

The Applicant demonstrates commitment to delivering the energy standard at St Georges Country House Hotel, Perranporth:

- This energy standard is delivered through a fabric-first approach to design with low-carbon measures and renewable energy.
- This residential Development has been designed to achieve a total reduction in CO_2 emissions of **98.2%** compared to the TER ADL 2021.

A combination of demand-reduction measures, energy-efficiency measures, low-carbon heating and renewable energy will deliver the Applicant's target for on-site reduction in CO_2 emissions.

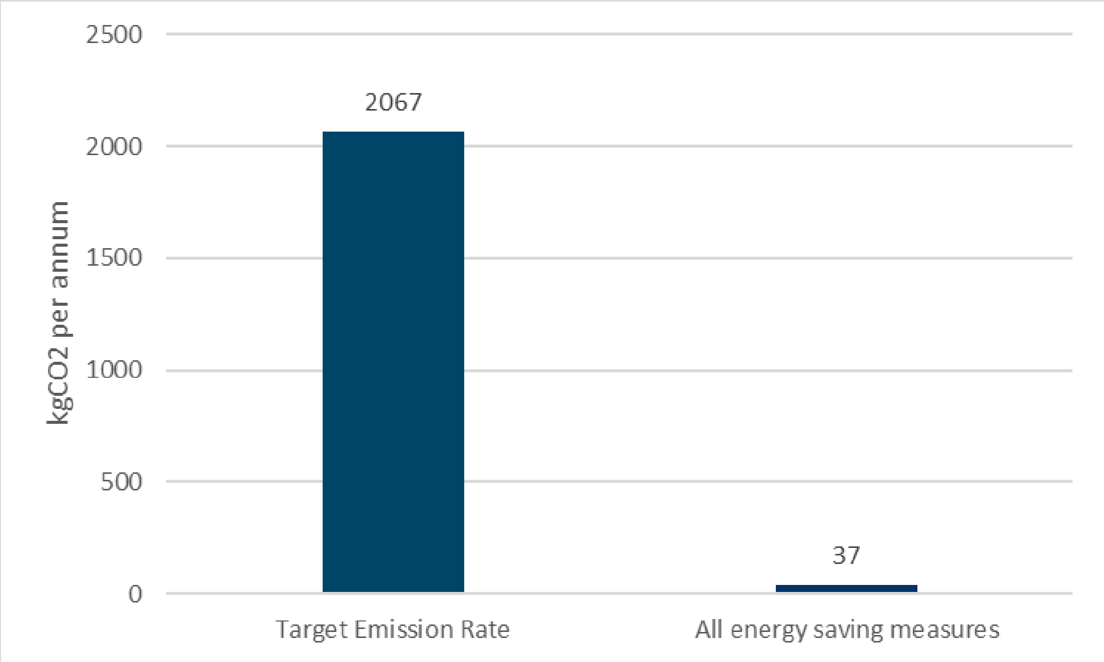
The following measures, summarised here in Table 5, are incorporated in the development proposals.

Table 5. 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 development.
Low-carbon & renewable energy	• High efficiency ASHP to provide heating and DHW to the proposed residential units. • PV array of 5.1kWp.

The way in which these design measures deliver the Applicant's commitment to the energy standard is illustrated in Figure 2, and Table 6 overleaf.

Figure 2: How the Development meets the energy standard ADL2021.



The calculated reduction in CO_2 emissions and the percentage reduction in CO_2 over ADL 2021 is demonstrated in Table 6.

Table 6: CO_2 emissions and percentage reduction over ADL2021

	CO_2 emissions	
	Kg/CO_2 per annum	% reduction
Target Emission Rate: Compliant with ADL 2021	2,067	-
All energy saving measures	37	98.2%
Total savings	**2,030**	**98.2%**

7. Appendices

Appendix 1: List of Abbreviations

ADL 2021	Approved Document Part L 2021
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 (2021).
National Planning Policy Framework (2021)
The National Planning Policy Framework encourages Local Planning Authorities to '*support the transition to a low carbon future in a changing climate, taking full account of flood risk and costal change' (*NPPF paragraph 152), '*whilst taking a proactive approach to mitigating and adapting to client change, taking into account the long-term implication for flood risk, costal change, water supply, biodiversity and landscapes, and the risk of over shading from rising temperatures'.* (NPFF Paragraph 153). Paragraph 155, upholds the requirement for Local Plans to: *'To help increase the use and supply of renewable and low carbon energy and heat, plans should: a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) consider identifying suitable areas of renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for collocating potential heat customers and suppliers.'* In paragraph 157, NPPF stipulates that local planning authorities should take account of the benefits of decentralised energy and passive design measures as a means of energy efficiency in new development: *'In determining planning applications, local planning authorities should expect new development to: a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.'*

Cornwall Council Local Plan (2010-2030)
Policy 13: Development standards All new development will be expected to achieve the provision of the following: 1. Sufficient internal space in housing for everyday activities and to enable flexibility and adaptability by meeting nationally described space standards for all affordable housing*; and 2. Public open space on-site, in proportion to the scale of the development and providing for different types of open space based on local need. Where there is access to alternative facilities that would meet the needs of the new development, contributions to the ongoing maintenance and management of these alternative facilities may be required as part of a reduced requirement on site; and 3. An appropriate level of off-street parking and cycle parking taking into account the accessibility of the location in terms of public transport and proximity to facilities and services; and 4. Sufficient and convenient space for storage for waste, recycling and compostables; and 5. Avoidance of adverse impacts, either individually or cumulatively, resulting from noise, dust, odour, vibration, vermin, waste, pollution and visual effects. Such adverse impacts should be avoided or mitigated during the construction, operation or restoration stage of development; and 6. Utilising opportunities for natural lighting, ventilation and heating by design, layout and orientation; and 7. Where feasible and viable, connection to an existing or planned heat network. In the absence of an existing or planning heat network development will be expected. **Policy 14: Renewable and low carbon energy** 1. To increase use and production of renewable and low carbon energy generation development proposals will be supported that: a. maximise the use of the available resource by deploying installations with the greatest energy output practicable taking into account the provisions of this Plan; b. make use, or offer genuine potential for use, of any waste heat produced; and c. in the case of wind turbines, they are within an area allocated by Neighbourhood Plans for wind power and avoid, or adequately mitigate shadow flicker, noise and adverse impact on air traffic operations, radar and air navigational installations; and d. do not have an overshadowing or overbearing effect on nearby habitations. e. in the case of solar development, noise, glint and glare is mitigated adequately. 2.Support will be given to renewable and low carbon energy generation developments that: a. are led by, or meet the needs of local communities; and b. create opportunities for co-location of energy producers with energy users, in particular heat, and facilitate renewable and low carbon energy innovation. 3. When considering such proposals, regard will be given to the wider benefits of providing energy from renewable sources, as well as the potential effects on the local environment; including any cumulative impact of these proposals. 4. In and within the setting of Areas of Outstanding Natural Beauty and undeveloped coast, developments will only be permitted in exceptional circumstances and should

generally be very small scale in order that the natural beauty of these areas may be conserved.
5. When considering proposals for renewables that impact upon the Area of Outstanding Natural Beauty and its setting and / or the World Heritage Site or other historic assets and their settings, applicants should apply other relevant policies in the Plan.

Policy CEC1 Part 2: Renewable Energy Off-setting Framework (March 2023)
The Offsetting Tariff:
3.1 The Cornwall Council tariff has been set at £0.10/kWh (£100/MWh). This tariff reflects the offsetting costs. It is considered that this rate should be viable in the majority of cases without incentivising the offsetting route. The tariff will be kept under review to ensure these attributes are maintained.
3.2 The offsetting tariff has been calculated to reflect all costs that would be incurred if the energy was to be provided onsite through roof-mounted solar PV panels for a period of 30 years (an assumed lifespan of a development). Such costs include for example administrative costs, annual maintenance, solar PV panel degradation over time and an inverter replacement for a typical 3kw solar PV array for each home. Further details of how the tariff has been calculated are set out in South West Energy Hub's evidence note : Options for setting a net zero energy offset price.
3.3 A worked example of how to apply the tariff to a proposed house where the renewable energy falls short of the total energy use is set out at Table 1. Where there are multiple proposed houses with a deficit these should be calculated separately and added together to determine the total deficit unless there are Information Classification: PUBLIC 4 agreed mitigating factors for resorting to compliance only on a site-wide basis. Apartment blocks can be treated as a single unit for the purpose of calculating the offsetting payment.

3.4 Table 1: An example of how to calculate an offsetting payment for a proposed house

Gross Internal Area floorspace (m^2)	95 m^2
Total energy	40 kWh/m^2
Onsite renewables	30 kWh/m^2
Renewable project lifetime	30 years
Energy deficit	(40-30kWh/m^2) x 30 years x 95m^2 = 28,500 kWh
Offset rate	£0.10/kWh
Offsetting payment	£2,850

The Council will not collect money below £50 in line with the CIL collection threshold as the administrative burden is disproportionate.

Appendix 3: SAP Results

Dwelling Type	TER/DER		TFEE/DFEE		TPER/DPER		Compliance achieved
Plot 1	11.36	3.17	35.89	33.65	59.38	32.38	YES
Plot 2	11.87	3.85	44.62	44.62	62.06	39.24	YES

Appendix 4: Renewable Energy Offsetting

Plot 1 (L)

Gross Internal Area (m²)	79.2 m²
Total Energy	59.38 kWh/m²
Onsite Renewables	27.0 kWh/m²
Renewable Project Lifetime	30 years
Energy Deficit	76,934.88 kWh
Offset Rate	£0.10/ kWh
Offsetting Payment	**£7,693.49**

Plot 2 (R)

Gross Internal Area (m²)	99.2 m²
Total Energy	62.06 kWh/m²
Onsite Renewables	22.82 kWh/m²
Renewable Project Lifetime	30 years
Energy Deficit	116,778.24 kWh
Offset Rate	£0.10/ kWh
Offsetting Payment	**£11,677.82**