



Screen Hub UK

**Energy – above and beyond  
to mitigate climate change**  
Sustainable, efficient, renewable

November 2021





## Screen Hub UK will deliver:

An energy efficient development by design of buildings and infrastructure

A minimum of 10% of energy requirements from on-site low carbon/renewable technologies rising to a voluntary design target of 25% and an ambition of 50%

Above and beyond policy requirement to help mitigate climate change

# EFFICIENCY

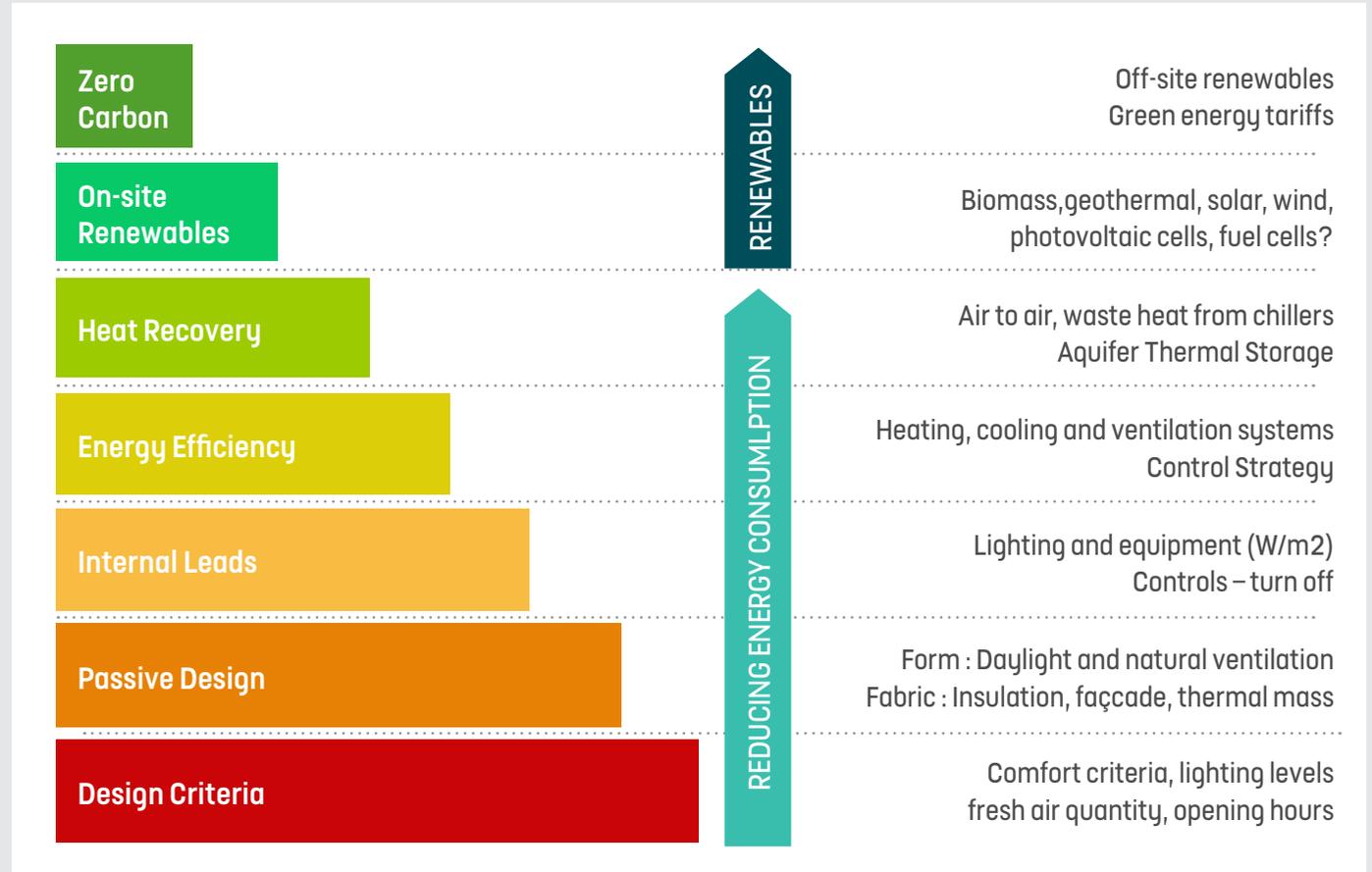
## Commitment

Pinewood Studios is committed to operating in accordance with the 'energy hierarchy' using a 'steps to low carbon' methodology.

## Delivery

The key features of this approach in practical application are:

- high thermal efficiency of buildings
- natural ventilation (over mechanical)
- high efficiency heat pumps (to generate heat)
- mechanical ventilation with heat recovery (MVHR)
- high efficiency / low consumption lighting
- on site renewable energy generation



Energy Hierarchy Model

# RENEWABLES

## Commitment

Pinewood Studios is committed to use of on-site low carbon / renewable technologies for the generation of power and heating needs.

## Technical review

A review of the most appropriate forms of on site provision has been carried out by Cundalls – Energy Statement July 2021.

## Solutions

The Energy Statement reports upon the power requirements for the SHUK development and recommends the use of:

- air source heat pump (ASHP) for general heating needs<sup>1</sup>
- photovoltaic panels (PV) for generation of electricity

1. Subject to building suitability



*Air source heat pumps work by taking heat from the air and boosting it to a higher temperature using a compressor. The heat is then used for building heating systems. (It is like a refrigerator in reverse).*



*Photovoltaics work by the direct conversion of sunlight into electric power using semi-conducting material such as silicon.*

## Requirements

The Energy Statement estimates the energy consumption requirement of the full development to be c. 4.6m KWh/a.

This is an energy requirement broadly equivalent to lighting and heating 450 homes.

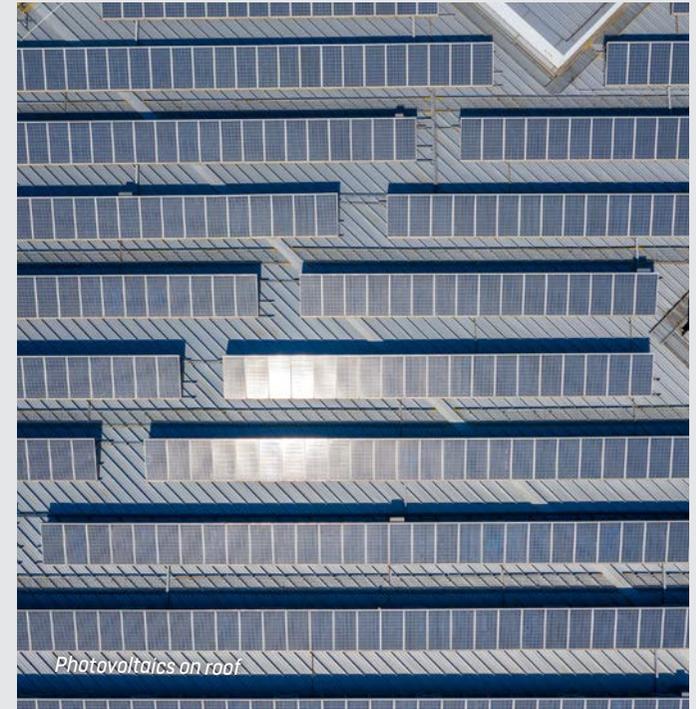
### On-site low zero carbon at 10%

In order to meet the policy requirement of 10% on-site low and zero carbon production a combination of ASHPs (4.7%) and PVs (5.3%) would be appropriate.

The ASHPs are mounted on the elevations of buildings or in clusters for which there is substantial opportunity.

The PVs would be roof mounted solar panels requiring an area of approximately 3,000 m<sup>2</sup> which is about 7% of the total scheme roof area of 40,000 m<sup>2</sup>.

The 10% policy requirement can therefore be met by the technologies proposed and best suited to the scheme. It will be a condition of any planning permission.



BUILDING TYPE	ENERGY FROM ASHP (KWh/a)	REMAINDER REQUIRED FROM PV (KWh/a)*	AREA OF ROOF SPACE REQUIRED (m <sup>2</sup> )*	TOTAL ENERGY REQUIRED FROM LZCs (KWh/a)
Production	67,092	114,306	1,399	181,398
Attraction / Experience	138,455	114,455	1,400	252,910
Growth Hub / Education	11,229	8,217	101	19,446
<b>Total</b>	<b>216,776</b>	<b>254,194</b>		<b>461,970</b>
Proportion	4.7%	5.3%		10%

*\* The PV area, location and generation amount are subject to further design consideration. The generation and areas here are an area weighted assumption based upon the building types GEA.*

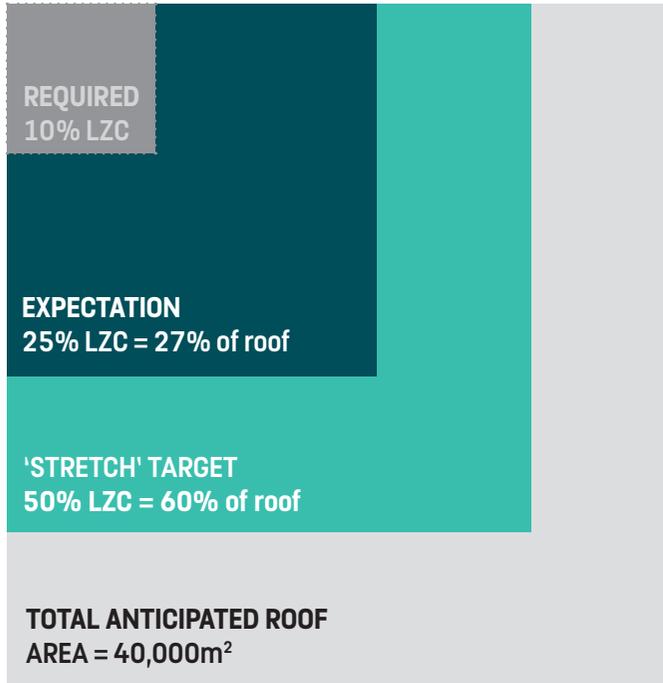
## Target above 10% low and zero carbon (LZC)

Pinewood Studios is committed to achieve on-site low and zero carbon generation at a target 'above and beyond' the **required 10%**.

Over the detailed planning phase a design target of 25% will be adopted as an **expectation** of being met.

A 'stretch' target of 50% will be set for testing and viability assessment over the design phase as an **ambition**.

These higher targets would be most suitably met by the use of roof mounted PV.



To achieve **25% LZC** around **11,000 m<sup>2</sup>** / **27%** of the roof area would be required.

To achieve **50% LZC** around **24,500 m<sup>2</sup>** / **60%** of the roof area would be required.

The total anticipated roof area is **40,000 m<sup>2</sup>**.

The proposed development would be likely to be developed in phases with the targets being met over time.



# PINEWOOD SUSTAINABILITY STRATEGY

Pinewood Group Ltd applies an overarching sustainability strategy into which the design and operation of SHUK would fit.

The strategic sustainability goals are:

- a 50% carbon reduction by 2030 from 2012 baseline
- zero waste to landfill

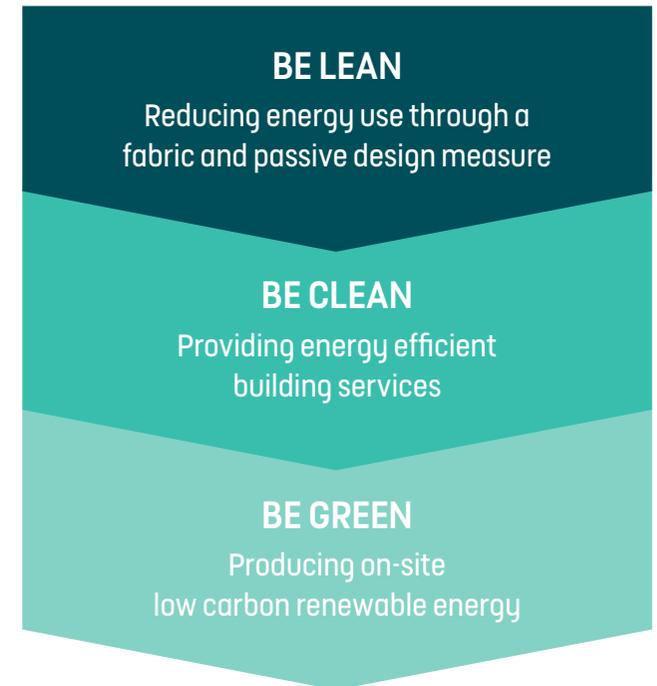
## The SHUK sustainability goals are:

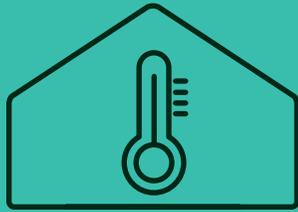
- minimising embodied carbon
- increasing climate resilience
- electric transport use
- BREEAM rating 'very good' for qualifying buildings
- energy minimisation

For energy the goal is: minimising energy use and making use of renewable and low carbon technologies.

PGL utilise energy modelling to optimise energy performance within buildings and ensure efficiencies are delivered through the provision of an energy metering and management system.

SHUK will follow the energy hierarchy

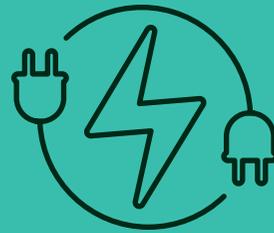




## Be lean

### REDUCING ENERGY

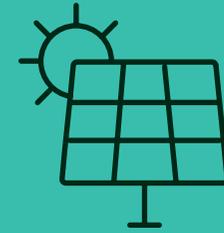
- reduction in heat and power demand through energy efficient buildings
- buildings designed to thermal values exceeding minimum requirements for building regs
- 100% LED lighting
- auto controlled lighting (including security)
- maximise solar gain and natural daylighting design
- protection from excessive solar gain (natural cooling)
- air tightness beyond requirements of building regs (where operationally possible)



## Be clean

### EFFICIENT ENERGY

- use of best available and appropriate technology to deliver energy efficiency
- district heating network and combined heat and power not feasible for the use(s)



## Be green

### LOW CARBON RENEWABLE ENERGY

- target delivery of 10% low carbon renewable (minimum requirement) with a design expectation of 25% and stretch ambition of 50%
- air source heat pumps for heating of suitable buildings
- solar photovoltaics suitable for this form of development
- 100% off-site renewable energy purchase (REGO)

# CONCLUSION

The Screen Hub UK development seeks to go 'above and beyond' policy and regulatory requirements for use of on-site low and zero carbon power generation technologies.

The development would be designed and operated within the broader Pinewood Sustainability Strategy.

Energy reduction and efficiency would be embedded in the design process of the site and its energy consumption requirement.

On-site low and zero carbon renewable energy generation technologies will be used to meet 10% (minimum requirement); 25% (design expectation); 50% (stretch ambition).

The most suitable technologies are air source heat pumps and solar photovoltaics which can be incorporated into the range of proposed buildings.

The targets sought are 'above and beyond' planning and building regulation requirements.

