

ENERGY ASSESSMENT

for 7 Hawthorne Road, Caversham, RG4 6LY

March 2025

Summary

The proposal involves the construction of two semi-detached houses, over three storeys at 7 Hawthorne Road, Caversham, RG4 6LY.

In compliance with Policy CC2 and H5 of Reading Borough Council, this Energy Assessment has been prepared to demonstrate that at least 19% of the energy demand for the new homes will be supplied through renewable energy sources.

Table A- Baseline Specification

Showing the minimum specification required to achieve Part L compliance.

Category	Item	Specification / Value Part L1A
Building Fabric (W/m2K)	Ground Floor	0.11
	External Walls / Stud Wall	0.18 / 0.12
	Slope Roof / Flat Roof / Plane Roof	0.13 / 0.14 / 0.12
Fenestration (W/m2K)	Solid Door	1.2
	Windows	1.2
Ventilation	Design Air Permeability (m3/hm2)	5
	Mechanical Ventilation	Intermittent extractor fans
Heating	Primary Heating System	Worcester Greenstar 8000 Style Gas boiler
	Controls	Time & temperature zone control
	Water Heating	From Main Heating
	Secondary Heating System	None
Additional Features	Low Energy Lighting	100%
	Regulation 36 Compliance	125 litres/person/day
Renewables	Photovoltaic (PV) panels	Plot 1: 5.00kWp Plot 2: 5.10kWp

ENERGY ASSESSMENT

for 7 Hawthorne Road, Caversham, RG4 6LY

March 2025

Table B- Renewables and low carbon technologies – considerations

Showing various renewables and carbon technologies available, highlighting the most appropriate choice suited for this site.

Technology	Requirements	Suitable for project?	Appropriate?
Photovoltaic panels (PV)	Roof facing east to west (or flat roof)	Yes	Yes
	Little/no or modest overshadowing	Yes	
	Flat roof or pitched roof no greater than 45 degrees	Yes	
	Any size development	Yes	
Solar thermal	All requirements as for photovoltaic panels	Yes	No
	How water tank (not suitable for combi boilers)	No	
Air Source Heat Pumps (ASHP)	Sustainable external wall	No	Yes
	Aesthetic considerations	No	
	Noise impact	No	
	Any size development	Yes	
Ground Source Heat Pumps	External space for horizontal trench or vertical borehole	No	No
	Medium to large sized development	No	
	Archaeology	Unknown	
	Best suited for underfloor heating	No	
Biomass	Space needed for plant, fuel storage and deliveries	No	No
	Medium to large size development	No	
	Minimal impact on residents (air quality, deliveries)	No	

Selected Renewable – **Photovoltaic (PV) panels**

ENERGY ASSESSMENT

for 7 Hawthorne Road, Caversham, RG4 6LY

March 2025

Given the location, size, and nature of the development, many renewable technologies may not be suitable for this site. However, PV Panels present a viable and effective solution to meet the requirement of generating at least 19% of the energy demand from renewable sources. As PV will be used already to achieve the baseline target, the panels can be scaled to generate the 19%.

The suitability of additional photovoltaic (PV) panels will need to be confirmed through a detailed site survey, which should assess factor such as roof orientation, shading, structural integrity, and available space, prior to installation.

Table C- Dwellings Total Energy Demand with renewable technology

Plot	Target Emissions Rate (TER) (kgCO ₂ /m ²)	Baseline Dwelling Emissions Rate (DER) (kgCO ₂ /m ²)	Suggested Installed PV (kWp)	Dwelling Emissions Rate (DER) with additional PV (kgCO ₂ /m ²)	Emissions Reduction (%)
1	8.16	8.00	7.70	6.47	20.7
2	7.84	7.81	7.90	6.29	19.8
Total	16.00	15.81		12.76	20.3

Target of generating at least 19% energy from renewables is exceeded with the use of additional PV panels.

Conclusion

The requirement to **generate at least 19% of the energy demand** through renewable technologies means that the design and operation of the dwellings will ensure that renewable energy sources can produce a proportion of the energy needed to run the buildings.

The inclusion of Photovoltaic panels in the design of these homes supports the achievement of Reading Borough Council's energy targets, while also making sure that new developments are energy-efficient, sustainable, and able to withstand the impacts of climate change.