ADUR DISTRICT COUNCIL

ENERGY STATEMENT TEMPLATE

Name of proposal:	***107A Gardner Road***
Type of application (pre-application, outline, full, condition discharge, reserved matters)	***Full Planning Permission***

Is the site within the Shoreham Harbour regeneration Area? YES

Is the site within the Shoreham Heat Network Area? NO

Please provide a short description of the proposal in question:

Erection of a detached three storey house

Table 1: Energy Statement Summary

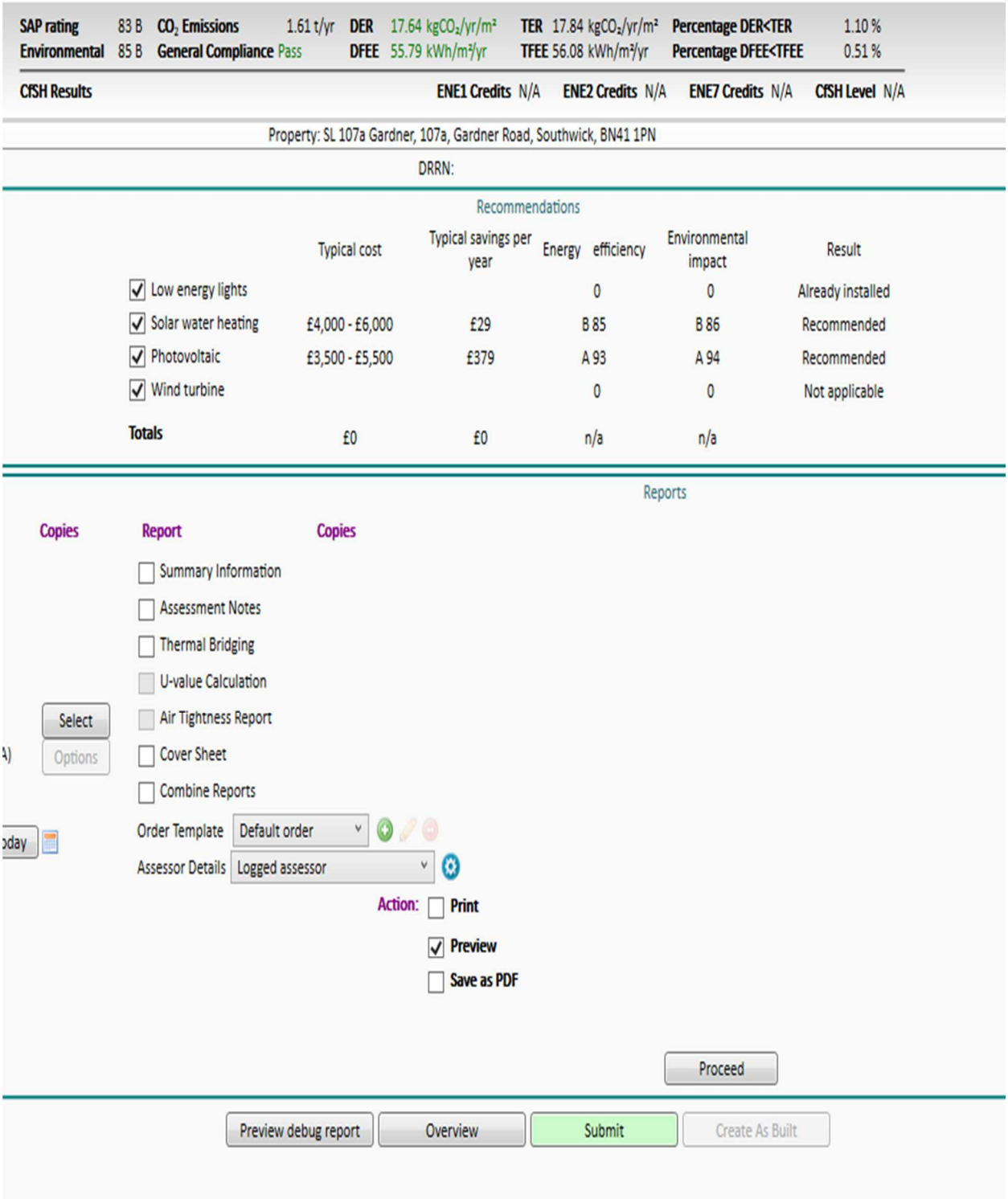
	Energy Statement Summary	Energy demand (kWh/yr)	Energy consumption savings (%)	CO_2 emissions (kg/yr)	CO_2 emission savings (%)
Step 1	**Calculate the baseline scheme compliant with 2013* Building Regulations**	9147.9644		1718.9269	
Step 2	**Calculate the proposed scheme after energy efficiency measures**	8039.0343	12%	1514.4515	11.89%
Step 3	**Calculate the proposed scheme after connection to a heating/cooling network**	N/A	N/A	N/A	N/A
Step 4	**Calculate the CO_2 emission savings target (10% of CO_2 emissions after Stage 3)**			1363.0064	10%
		Energy generation (kWh/yr)	**Energy generation savings (%)**	**CO_2 emissions (kg/yr)**	**CO_2 emission savings (%)**
Step 5	**Calculate the proposed scheme after renewables savings to meet the 10% reduction target as a minimum**	3938.2364	51%	649.6989	52%
		Net energy demand (kWh/yr)	**Net energy consumption savings (%)**	**Net CO_2 emissions (kg/yr)**	**Net CO_2 emission savings (%)**

Step 6	**Calculate the net energy demand and CO_2 emissions from the baseline scheme after all reductions**	3938.2364	56%	649.6989	62%

*The baseline scheme must be a 2013 Building Regulations compliant building (please note that use of the building regulation backstops/software default is not equivalent to a compliant building and is therefore not acceptable)

Step 7	**Show this information in graph form**

[INSE



Step 8	**Summarise the measures taken under Step 2, 3 and 5 to achieve the total savings**

The process undertaken was the following:

1. Design the unit to pass building regulations (Baseline)
2. Design the unit with improved U values and airtightness (Lean)
3. Design the unit with Solar P.V panels. (Reduction)

TABLE 2: Energy Strategy

The Executive Summary must be accompanied by a full energy strategy for the development. Please provide full details of how the scheme complies with the principles of this SPD and the relevant policies in the Adur Local Plan and/or Shoreham Harbour Joint Area Action Plan. Please see information requirements below:
1. **Passive design** - Provide details of passive design measures included in the development, explaining how these measures will reduce energy demand. These include: • Building form (eg. internal layout, building materials used. etc.) • Orientation and shading - including orientation of roofs to maximise solar energy potential. • The positioning of openings - to allow the penetration of solar radiation, visible light, and for ventilation. • Thermal mass (to reduce the need for heating during winter)
[Insert text here]
2. **Energy efficiency** - Provide details of physical measures to ensure the energy efficient use of the building, explaining how these measures will reduce energy demand. These include: • Use of insulating materials (with a high energy performance) - eg. levels of roof insulation, wall insulation, air tightness, etc. • Minimisation of thermal bridging • Use of materials with a high energy performance (low U-values) • Electrical appliances • Low-energy fixtures (eg. LED lighting)
Wall U value Enhanced to 0.14 Airtightness Improved to 5 instead of 8
3. **Heating, cooling and hot water** - Provide details of measures to minimise the amount of energy and carbon dioxide emissions used to heat and/or cool the building and provide hot water (in accordance with the heating hierarchy). These include:

System:

- Connection to existing heating/cooling network (most preferred)
  - Protected pipe routes
  - Plant room location
  - Plant room design
- Site-wide heating/cooling network
- Building-wide heating/cooling network
- Individual heating/cooling systems (least preferred)

Technology:

- Renewable/waste energy sources (such as biomass, heat pumps, solar thermal) (most preferred)
- Low carbon technologies (such as gas-CHP)
- Conventional systems (such as gas or direct electric) (least preferred)

There is no connection to a District heat network so we have installed a A rated combi Gas Boiler.

4. Overheating - Provide details of measures to minimise the amount of energy and carbon dioxide emissions used to prevent the building from overheating during warm weather. These include:

- Ground cooling
- Canal water cooling
- Minimise internal heat generation through energy efficient design
- Reducing the amount of heat entering the building in summer
- Use of thermal mass and high ceilings to manage the heat within the building
- Ventilation - Passive (most preferred); Mechanical (least preferred)

[Insert text here]

5. Renewable technologies - Provide details of renewable energy technologies used to generate energy used onsite in the table below. These include:

- Solar PV (Photovoltaics)
- Solar Thermal (Solar Water Heating)
- Wind turbines

- Biomass fuelled electricity and heat generating plant
- Air source heat pump
- Water/Ground source heat pump
- District heating
- Combined Heat & Power (CHP) and Combined Cooling, Heat & Power (CCHP)

Technology type (eg. PV, solar thermal, biomass)	**Description**	**Capacity from this technology (kW)**	**Estimated annual generation (kWh)**	**Total CO_2 saving from this technology (kg CO_2/m^2)**
Example: *Solar PV*	*28m² of 345W PV panels, 16% efficiency*	*3kWp*	*2550 kWh*	*1045*
[Add lines as needed]	7.2m2 of 390w PV panels	1.95kWp	1666 kWh	52%
TOTAL				

Please provide the rationale for the chosen renewable energy technologies, and demonstrate that they are the most suitable options for the proposed development scheme below:

6. **Energy Performance Gap** - Note how the Performance Gap will be addressed following construction of the building. This must include:

- The proposed measures to monitor the energy performance of the development.
- The proposed measures to address any gap between predicted and actual energy performance of the development.

The As Built SAP calculations will be checked against the Design stage with a valid MCS certificate to verify the PV installation.

7. **Feasibility and viability** - As per Principle 8 in the Supplementary Planning Document, if you do not consider it feasible to meet any of the above requirements please use this section to provide the following:

A. Demonstrate that all options have been explored, and the reasons why the meeting the requirement/s is not feasible.
B. Outline which measures meeting the requirements that are feasible.

Please note: If it is considered that any of the requirements are not feasible, a full open-book viability appraisal should be submitted alongside this Energy Statement which clearly demonstrates that this is the case. The viability appraisal must:

- Be completed by a suitably qualified, independent individual.
- Include baseline energy consumption and carbon emissions calculations for regulated energy use
- Compare the financial viability of a compliant scheme with the proposed scheme
- Provide a breakdown of the cost estimates and assumptions used for the assessment
- Present Internal Rate of Return (IRR), capital expenditure, cost and carbon savings as outputs.

All attached and carried out by Neil Vanson (Falcon Energy Limited) OCDEA, NDEA level 4, DEA