# Installation of Solar Panels on Green shed Roofs at Seascale Golf Club

### **Planning Supporting Documents**

#### Introduction

Seascale Golf Club is seeking install 150 solar PV panels on its Green shed roofs as Phase 1 of a scheme to help to curb rapidly rising energy costs, and for an additional 23 panels to be installed as Phase 2 as experience is gained on running an optimised system. The installed capacity of the panels will be 50kW which is expected to provide about one third of the club's electricity needs. After detailed and helpful consultation with CBC Panning Department, Seascale Golf Club would like to submit the following application to increase the future sustainability of a valuable local community asset.

#### **Justification Statement**

Seascale Golf Club Ltd is a not-for-profit Community Amateur Sports Club Ltd (CASCLtd) with around 500 members. As a CASCLtd, its aim is to further the sport of golf within the local community and to invest any surplus of operations into development of the course and club for the furtherance of the sport. It is run by a Council/Committee with three directors ensuring compliance as a company. Day-to-day management is carried out by the Manager/Secretary who has steadily improved the course and services over recent years, reaching Top 100 status. The club provides employment for 10 full-time and 8 part-time staff and is keen to develop local youngsters through apprenticeship opportunities. It also provides a community facility in Seascale which is well used and is a key visitor attraction for the village.

Recent increases in the cost of living are reflected in the financial position of the Club which is tackling two of its main cost items – energy and water – by seeking sustainable solutions. For water it has invested in the installation of a borehole which should see the greens and tees nourished by water from an aquifer – thereby meeting the demand posed by more frequent periods of draught. On energy, like most of the population, the Club faces a more than doubling of its electricity costs with the annual bill set to rise from  $\pounds 15,000$  to  $\pounds 35,000$ . Finding a sustainable alternative supply therefore became essential and urgent in maintaining a viable operation.

The Club considers that the most environmentally friendly solution to alternative electricity supplies is solar power. We considered potential ground-mounted solar arrays, but were concerned about planning, design, and safeguarding issues. Roof mounted solar panels seemed to provide the obvious solution, but the clubhouse roof did not provide the suitable base for solar arrays – and was prone to stormy weather off the

sea. The green shed roofs provided a large expanse of surface area, oriented well to catch the sun throughout the day, maximising potential generation.

The precarious nature of the global energy market is forcing governments and communities to think seriously about alternative sources of energy, and our government is looking for urgent solutions. This scheme is a timely answer to this need. We believe the panels will blend in well, be likely to improve the appearance of the roofs and be a visible demonstration of Seascale Golf Club's journey to a more green, sustainable future.

## **Proposed Works**

#### Phase 1

- To install solar PV panel arrays on both sides the green shed roofs in order to maximise potential energy capture throughout daylight hours. Up to 150 solar panels with a potential installed capacity of 50 kW.
- To feed the power produced via 3-phase underground cable to the clubhouse co-locating with the existing 3-phase mains installation. Routing from green sheds around the welfare facility and the boundary of the putting green, under the road rumble strip, follow the road/grass boundary, then under the road towards the pro-shop/foyer.
- To install suitable storage batteries to optimise power produced.
- To export surplus power not used to the grid.
- To install 5kW single phase connection to greens facilities.

#### Phase 2

• To install up to a further 23 PV panels to augment capacity at an appropriate time.

### **System Specification**

#### 50kW system to feed clubhouse

Supply and fit 136 370kW JA Solar 370W Mono MBB Percium Half-cell All Black MC4 panels with a Solis 50kW 3 phase inverter

• Includes full test and commissioning and all access equipment

#### 5kW system for Greenkeeping Sheds

Supply and fit 14 370kW tier 1 panels with a Solis 5kW inverter

- Includes full test and commissioning and all access equipment
- Supply and fit Pure Drive 10kW AC 3 phase battery storage for clubhouse only

Supply and fitting SWA cable to be dug round the perimeter of golf course grass

## **Equipment/Materials**

JA Solar 370W Mono MBB Percium Half-cell All Black MC4 panels	
Solis 50kW 3 phase inverter	1 off
Solis 5kW inverter	1 off
Pure Drive 10kW AC 3 phase battery	1 off
SWA cable	150 m approx.

150 off in Phase 1 23 in Phase 2

## Contractor

SJD Electrical, 227A Blackwell Road, Carlisle CA2 4DN T: 01228 317474 M: 07707 699 644 Supplier and installer of solar power systems throughout Cumbria for last 10 years.

## Photographs of location and building



Aerial View of Green sheds and surrounding area.



Green shed roof - west-facing



Green shed roof - east-facing



Green shed roof looking towards North



Closer aerial shot of relevant buildings



**Buggy compound roof** 

Green shed Roof rea 24.5m x 6.35m = 155.57 m2 155.57 m2 x 2 (both sides) = 311.15m2 total area



Location plan. OS ref NX037015



Site plan. OS NX037015



Layout with dimensions



Layout showing disposition of 150 panels (shown black) of Phase 1 and additional capacity of 23 panels (shown yellow) for Phase 2.



Schematic of planned layout Phase 1(shown black) and Phase 2(shown yellow).