



**The Stella Group Ltd**

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WF14 8NF

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**Customer No.:** EN-ST-150

**Project Name:** 377b Ground Mount

Tanya Lobley  
377b, Halifax Road, Hightown, Liversedge,  
WF15 8DU

02/04/2025

## Your PV system from The Stella Group Ltd

### Address of Installation

377b, Halifax Road, Hightown, Liversedge, WF15 8DU



### Project Description:

Domestic PV Ground Mount

## Project Overview



Figure: Overview Image, 3D Design

## PV System

### 3D, Grid-connected PV System with Electrical Appliances and Battery Systems

Climate Data	Liversedge, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
PV Generator Output	5.8 kWp
PV Generator Surface	25.8 m <sup>2</sup>
Number of PV Modules	10
Number of Inverters	1
No. of battery systems	1

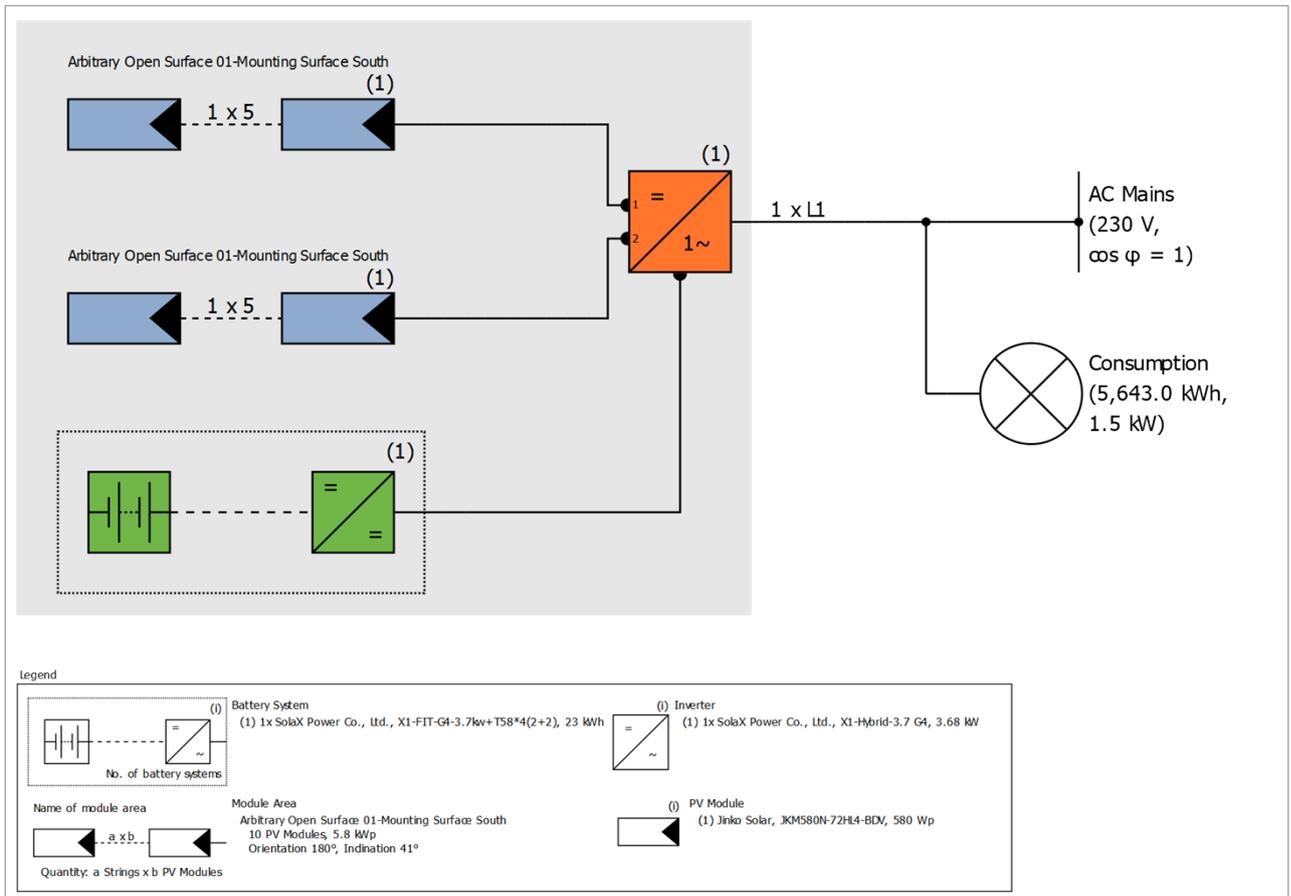


Figure: Schematic diagram

## Production Forecast

### Production Forecast

PV Generator Output	5.80 kWp
Spec. Annual Yield	974.84 kWh/kWp
Performance Ratio (PR)	80.26 %
Yield Reduction due to Shading	6.9 %
PV Generator Energy (AC grid) with battery	5,514 kWh/Year
Direct Own Use	4,048 kWh/Year
Clipping at Feed-in Point	0 kWh/Year
Grid Export	1,466 kWh/Year
Own Power Consumption	73.3 %
CO <sub>2</sub> Emissions avoided	1,117 kg / year
Level of Self-sufficiency	71.5 %

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV\*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.

# Set-up of the System

## Overview

### System Data

Type of System	3D, Grid-connected PV System with Electrical Appliances and Battery Systems
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### Climate Data

Location	Liversedge, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

### Consumption

Total Consumption	5643 kWh
UK Household	5643 kWh
Load Peak	1.5 kW

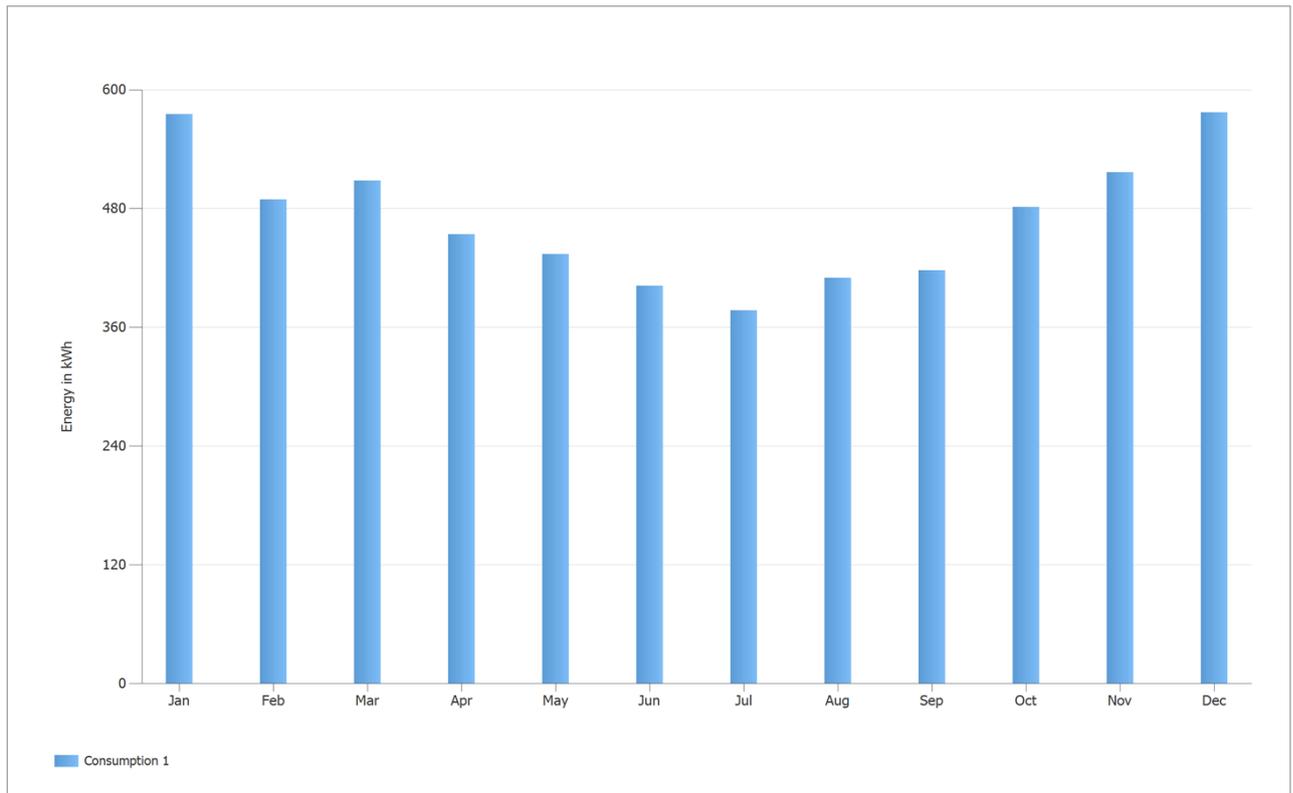


Figure: Consumption

## Module Areas

### 1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

#### PV Generator, 1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

Name	Arbitrary Open Surface 01-Mounting Surface South
PV Modules	10 x JKM580N-72HL4-BDV (v1)
Manufacturer	Jinko Solar
Inclination	41 °
Orientation	South 180 °
Installation Type	Mounted - Roof
PV Generator Surface	25.8 m <sup>2</sup>

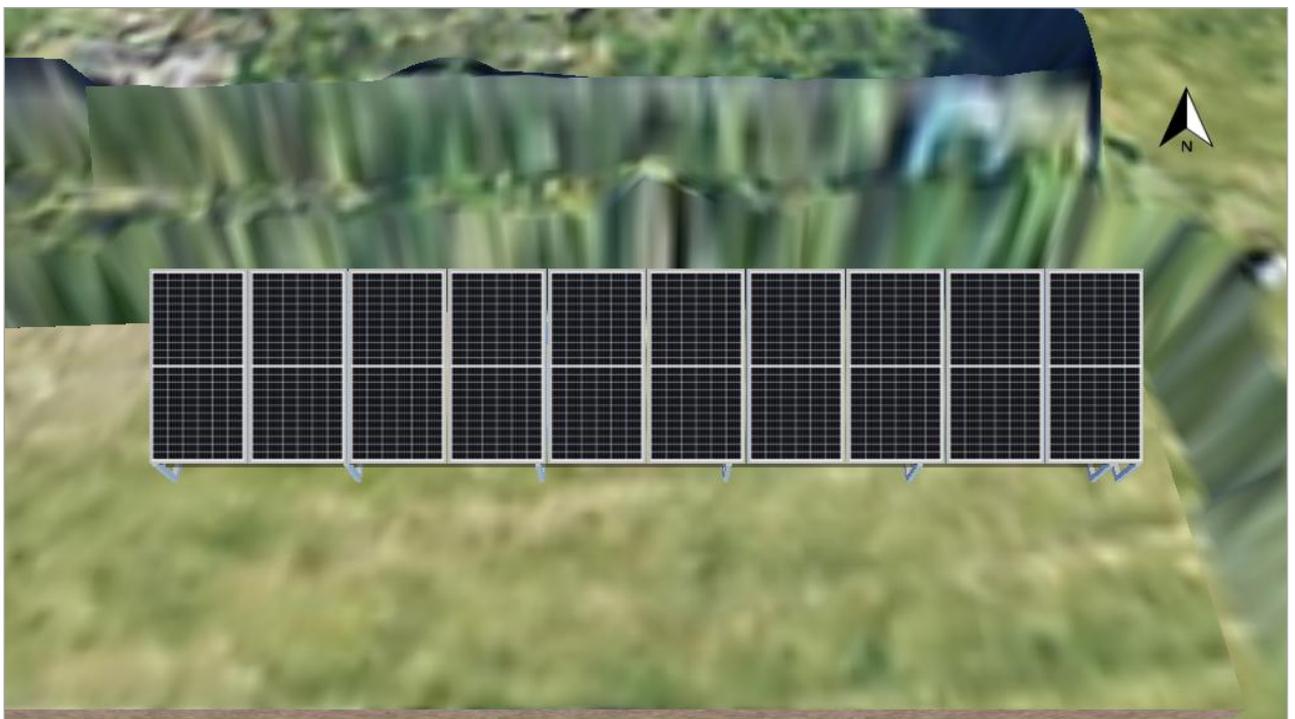


Figure: 1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

## Horizon Line, 3D Design

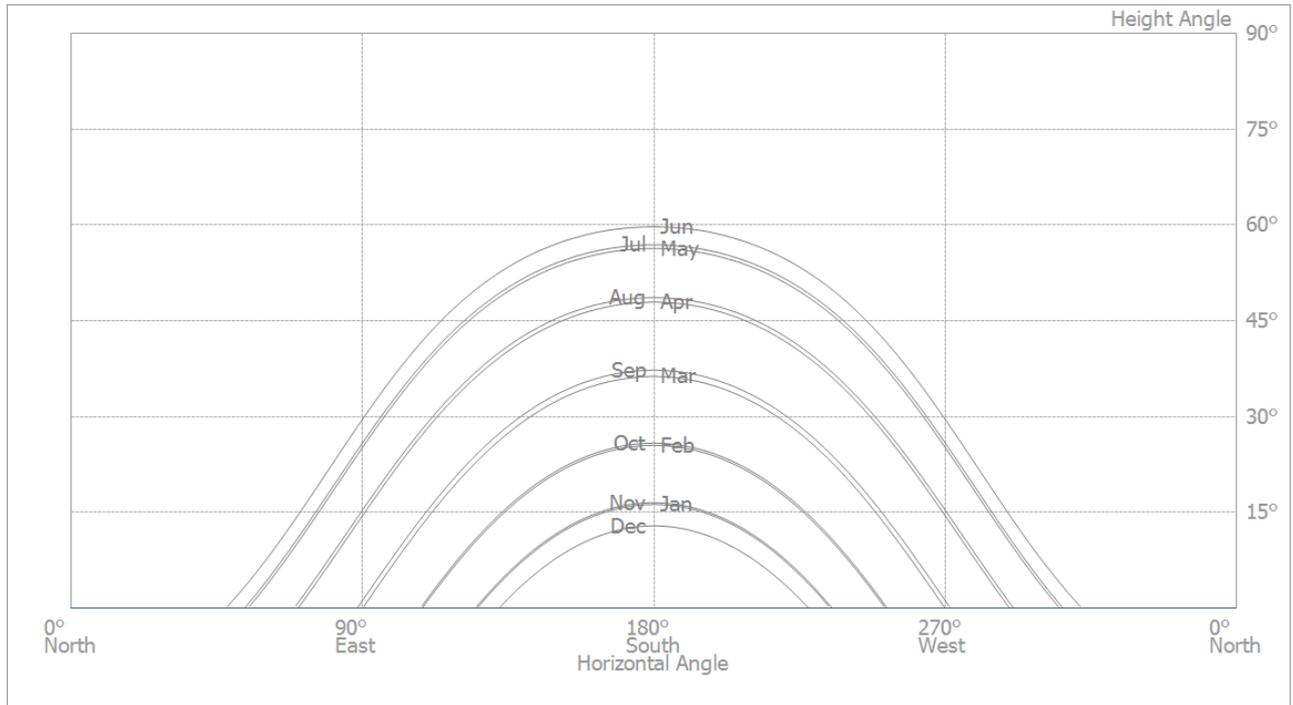


Figure: Horizon (3D Design)

## Inverter configuration

### Configuration 1

Module Area	Arbitrary Open Surface 01-Mounting Surface South
Inverter 1	
Model	X1-Hybrid-3.7 G4 (v7)
Manufacturer	SolaX Power Co., Ltd.
Quantity	1
Sizing Factor	157.6 %
Configuration	MPP 1: 1 x 5 MPP 2: 1 x 5

## AC Mains

### AC Mains

Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

## Battery Systems

### Battery System - Group 1

Model	X1-FIT-G4-3.7kw+T58*4(2+2) (v2)
Manufacturer	SolaX Power Co., Ltd.
Quantity	1
Battery Inverter	
Type of Coupling	DC intermediate circuit coupling
Nominal output	3.68 kW
Battery	
Manufacturer	SolaX Power Co., Ltd.
Model	T58 (v1)
Quantity	4
Battery Energy	23 kWh
Battery Type	Lithium iron phosphate

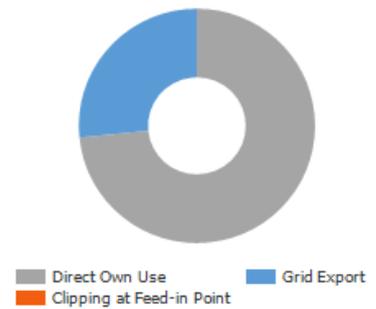
# Simulation Results

## Results Total System

### PV System

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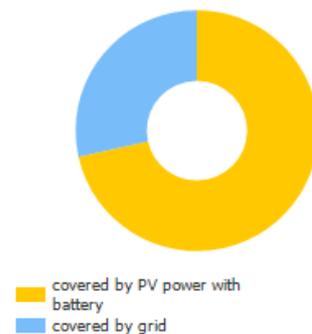
PV Generator Energy (AC grid) with battery



### Appliances

Appliances	5,643 kWh/Year
Standby Consumption (Inverter)	17 kWh/Year
<b>Total Consumption</b>	<b>5,660 kWh/Year</b>
covered by PV power with battery	4,048 kWh/Year
covered by grid	1,612 kWh/Year
Solar Fraction	71.5 %

Total Consumption



### Battery System

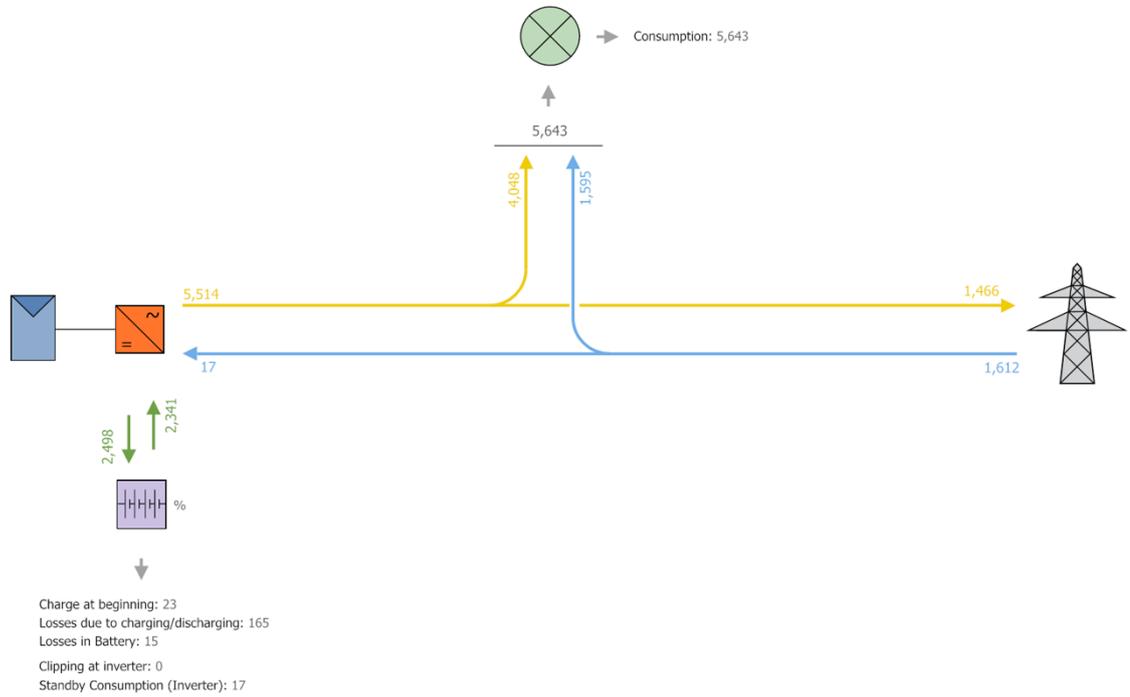
Charge at beginning	23 kWh
Battery Charge (PV System)	2,498 kWh/Year
Battery Energy for the Covering of Consumption	2,341 kWh/Year
Battery discharge into the grid	0 kWh/Year
Losses due to charging/discharging	165 kWh/Year
Losses in Battery	15 kWh/Year
Cycle Load	2.2 %
Service Life	>20 Years

### Level of Self-sufficiency

Total Consumption	5,660 kWh/Year
covered by grid	1,612 kWh/Year
Level of Self-sufficiency	71.5 %

### Energy Flow Graph

Project: 377b Ground Mount



All values in kWh  
Small deviations in the totals can occur due to rounding  
created with PV\*SOL

Figure: Energy flow

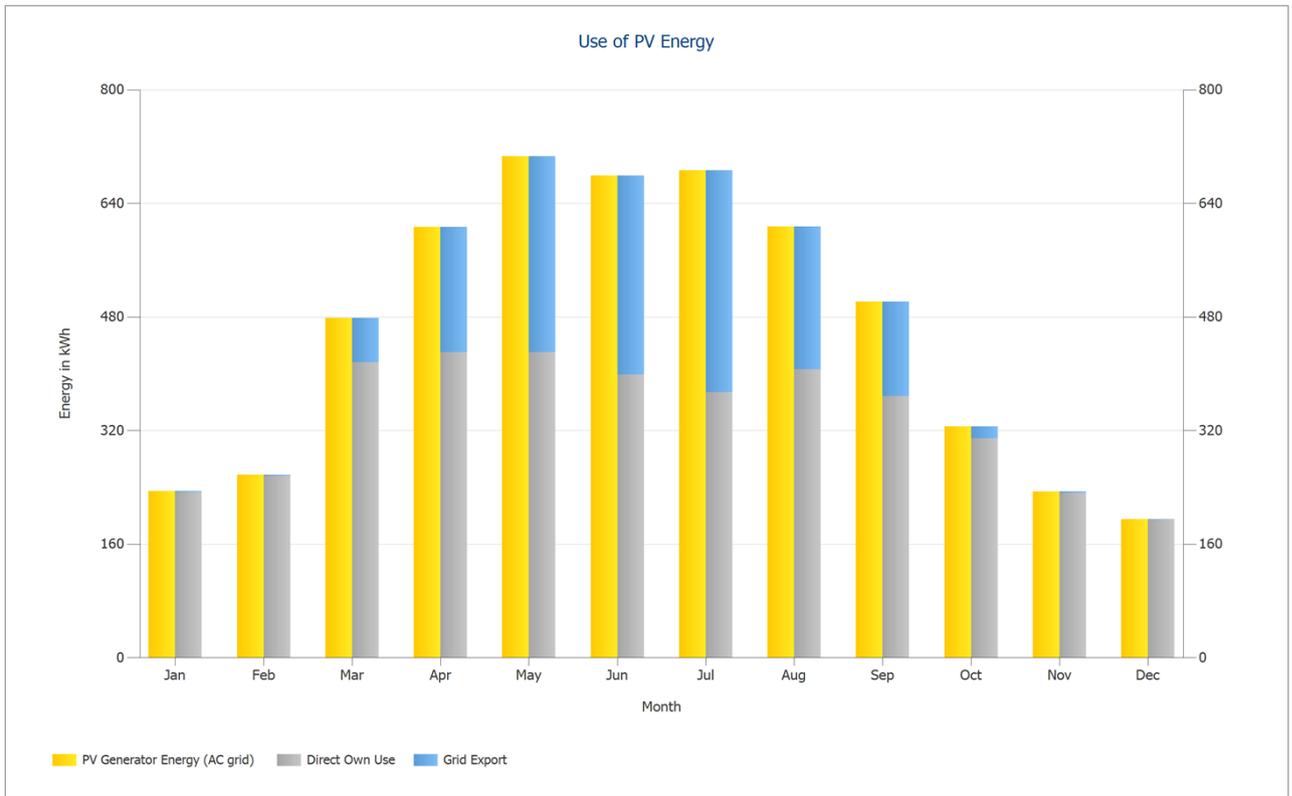


Figure: Use of PV Energy

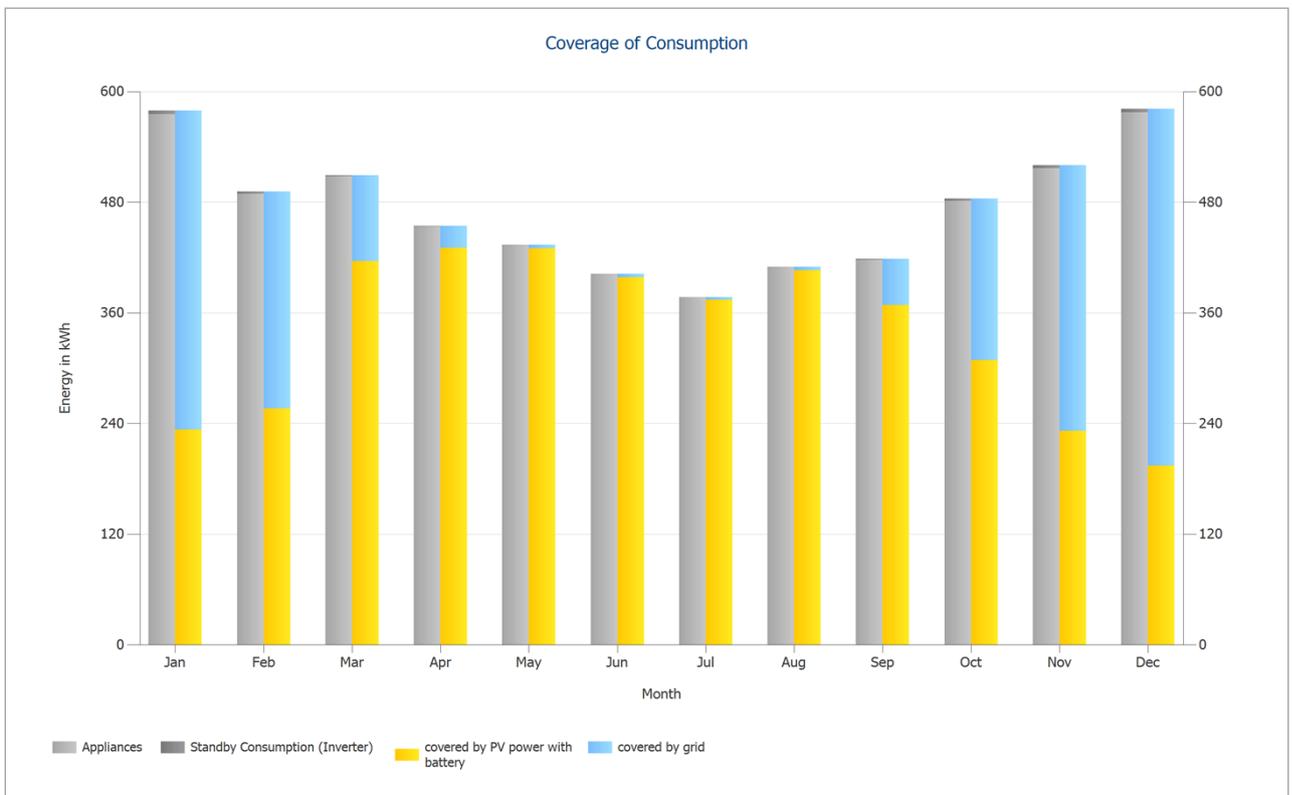


Figure: Coverage of Consumption

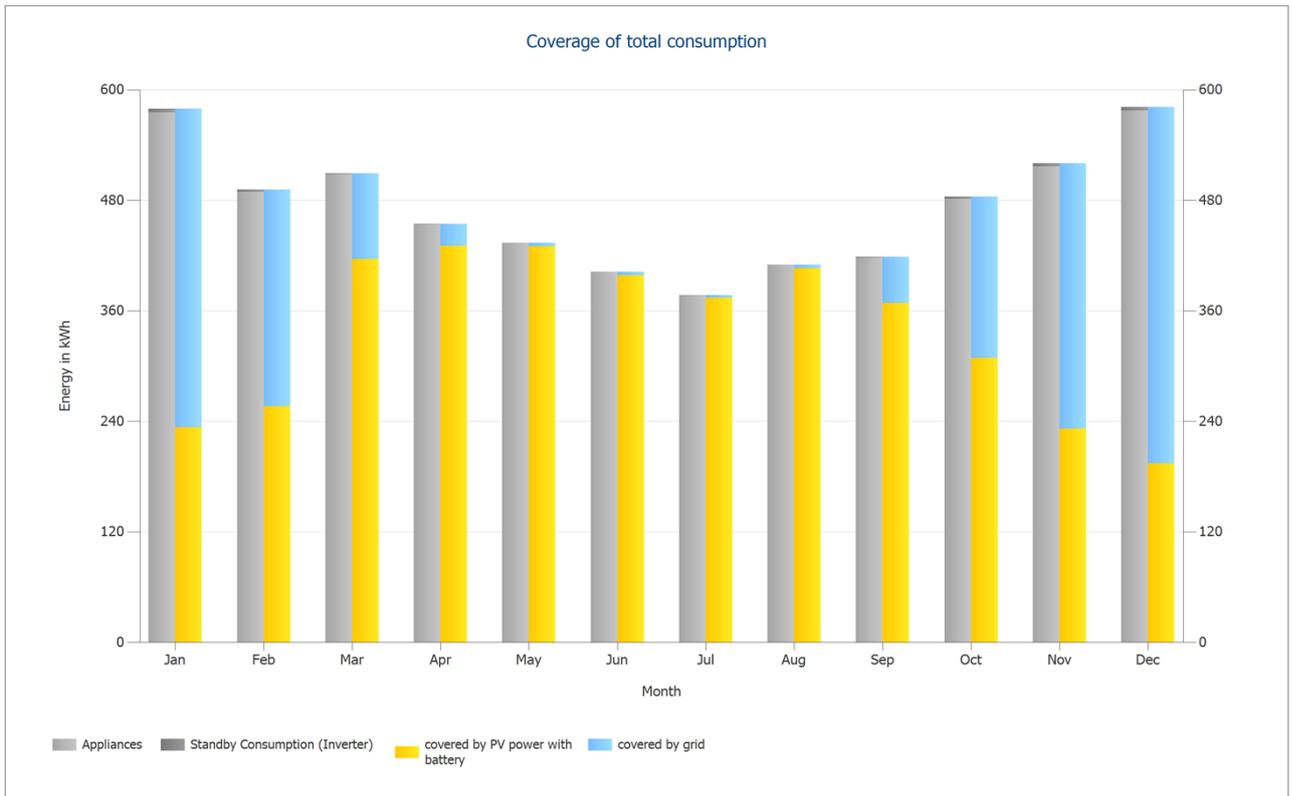
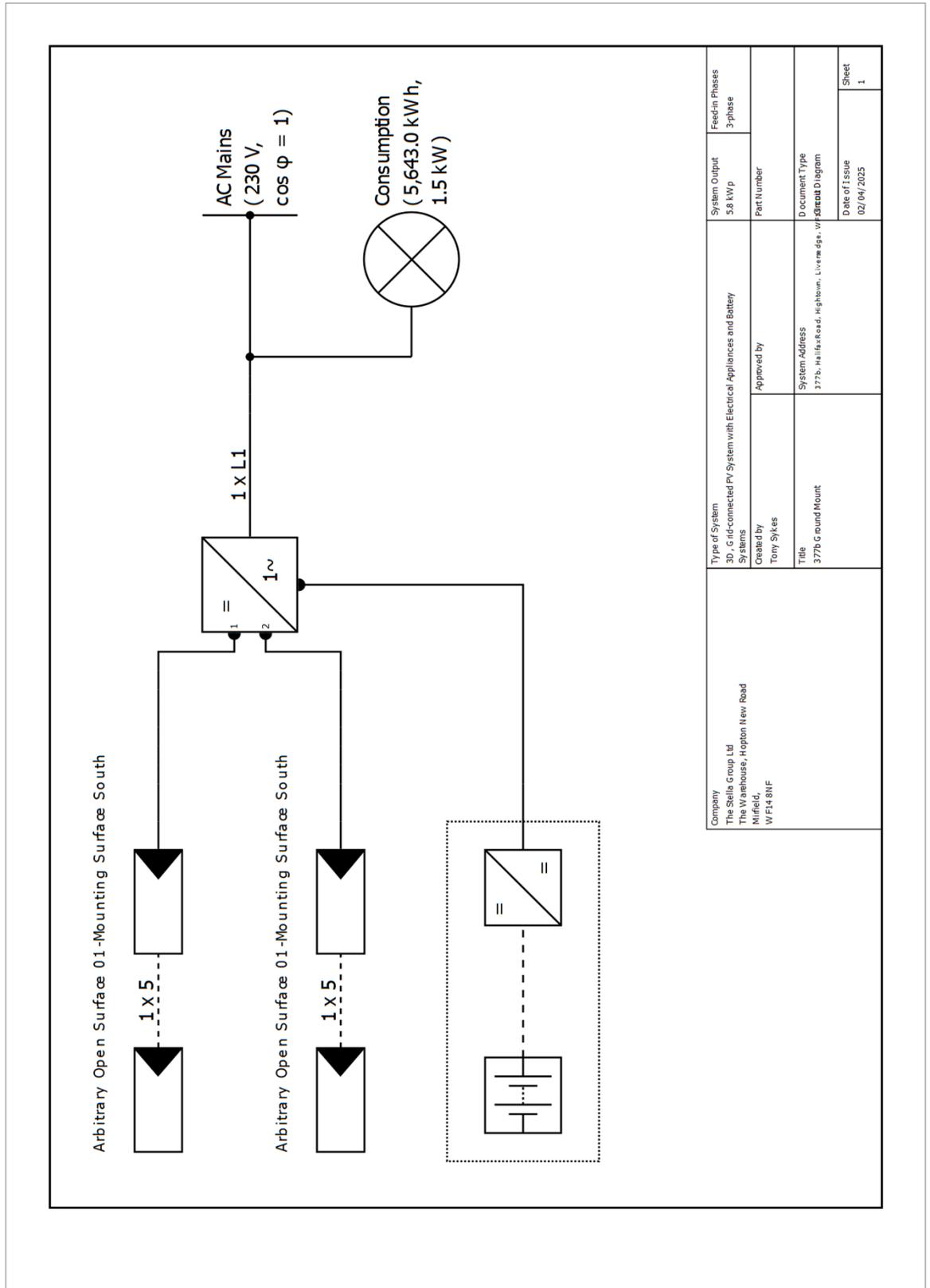


Figure: Coverage of total consumption

# Plans and parts list

## Circuit Diagram



Company The Stella Group Ltd The Warehouse, Hopton New Road Milfield, WFL4 8NF	Type of System 3D, Grid-connected PV System with Electrical Appliances and Battery Systems Created by Tony Sykes	System Output 5.6 kWp	Feed-in Phases 3-phase
Title 377b Ground Mount	Approved by System Address 377b, Hillax Road, Highdown, Liversidge, WFL4 8NF	Part Number	Document Type Circuit Diagram
		Date of Issue 02/04/2025	Sheet 1

Figure: Circuit Diagram

# Screenshots, 3D Design Environment

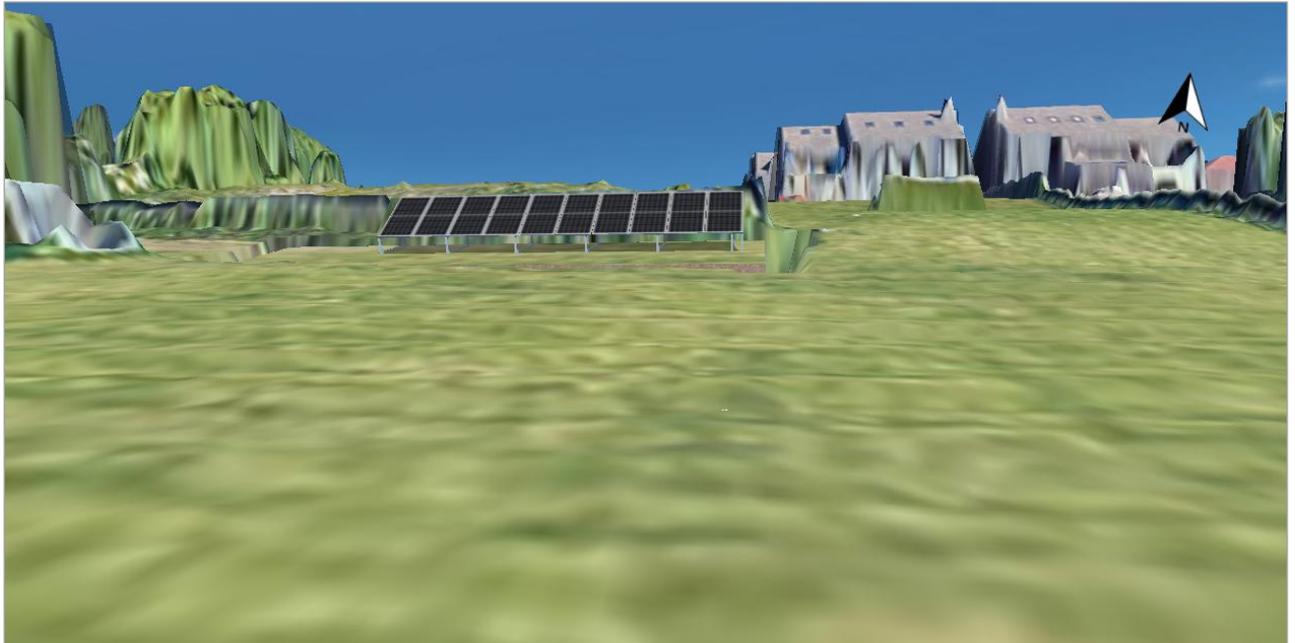


Figure: Screenshot02

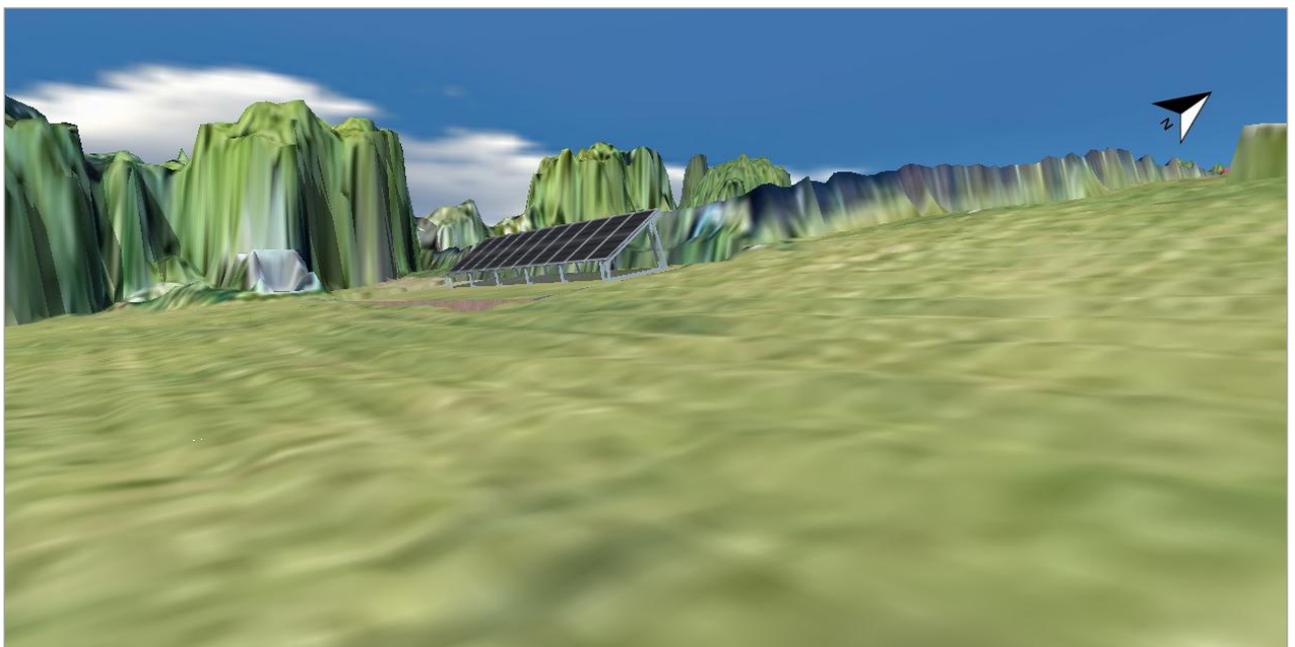


Figure: Screenshot03

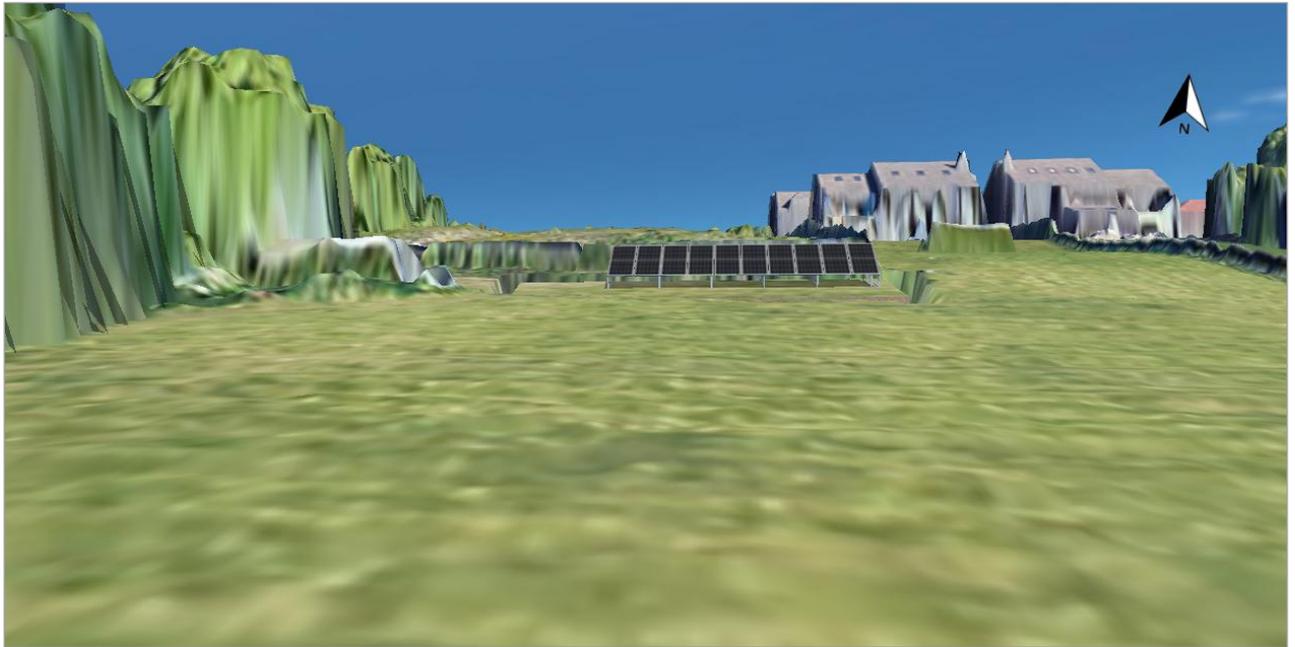


Figure: Screenshot04

## Shading



Figure: Screenshot01