

## Project Overview



Figure: Overview Image, 3D Design

## PV System

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

|                        |                                           |
|------------------------|-------------------------------------------|
| Climate Data           | London-Gatwick/Crawley, GBR (2001 - 2020) |
| Values source          | Meteonorm 9.0                             |
| PV Generator Output    | 30.71 kWp                                 |
| PV Generator Surface   | 125.7 m <sup>2</sup>                      |
| Number of PV Modules   | 59                                        |
| Number of Inverters    | 1                                         |
| No. of battery systems | 1                                         |

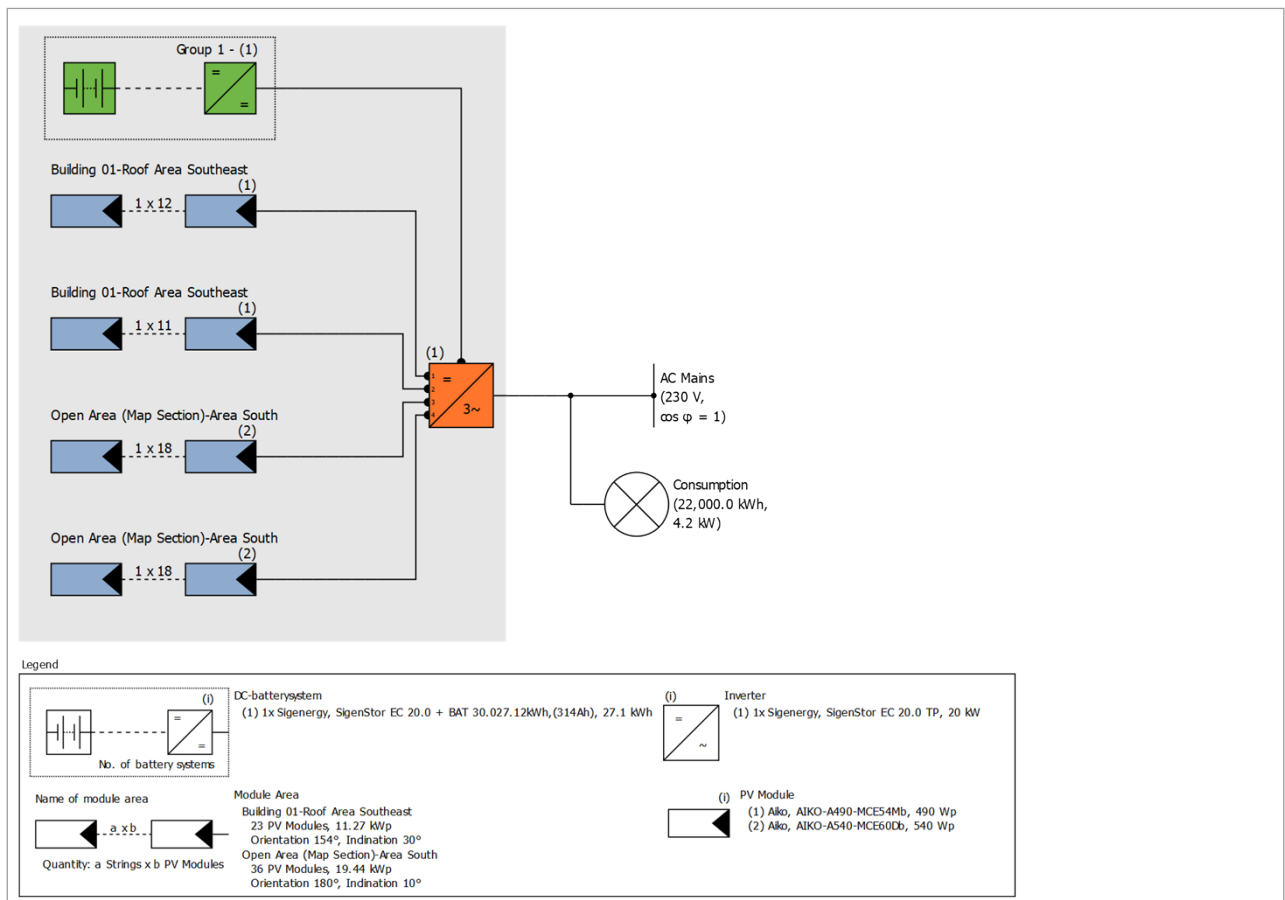


Figure: Schematic diagram

## Production Forecast

### Production Forecast

|                                            |                  |
|--------------------------------------------|------------------|
| PV Generator Output                        | 30.71 kWp        |
| Spec. Annual Yield                         | 1,009.20 kWh/kWp |
| Performance Ratio (PR)                     | 87.95 %          |
| Yield Reduction due to Shading             | 0.3 %            |
| PV Generator Energy (AC grid) with battery | 30,578 kWh/Year  |
| Direct Own Use                             | 15,994 kWh/Year  |
| Grid Export                                | 14,584 kWh/Year  |
| Own Power Consumption                      | 52.3 %           |
| CO <sub>2</sub> Emissions avoided          | 11,443 kg / year |
| Level of Self-sufficiency                  | 72.7 %           |

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 |
|----------------|-----------------------------------------------------------------------------|

### Climate Data

|                                             |                                           |
|---------------------------------------------|-------------------------------------------|
| Location                                    | London-Gatwick/Crawley, GBR (2001 - 2020) |
| Values source                               | Meteonorm 9.0                             |
| Data resolution                             | 1 h                                       |
| Simulation models used:                     |                                           |
| - Diffuse Irradiation onto Horizontal Plane | Hofmann                                   |
| - Irradiance onto tilted surface            | Hay & Davies                              |

### Consumption

|                          |           |
|--------------------------|-----------|
| Total Consumption        | 22000 kWh |
| UK Household (Copy) Hugh | 22000 kWh |
| Load Peak                | 4.2 kW    |

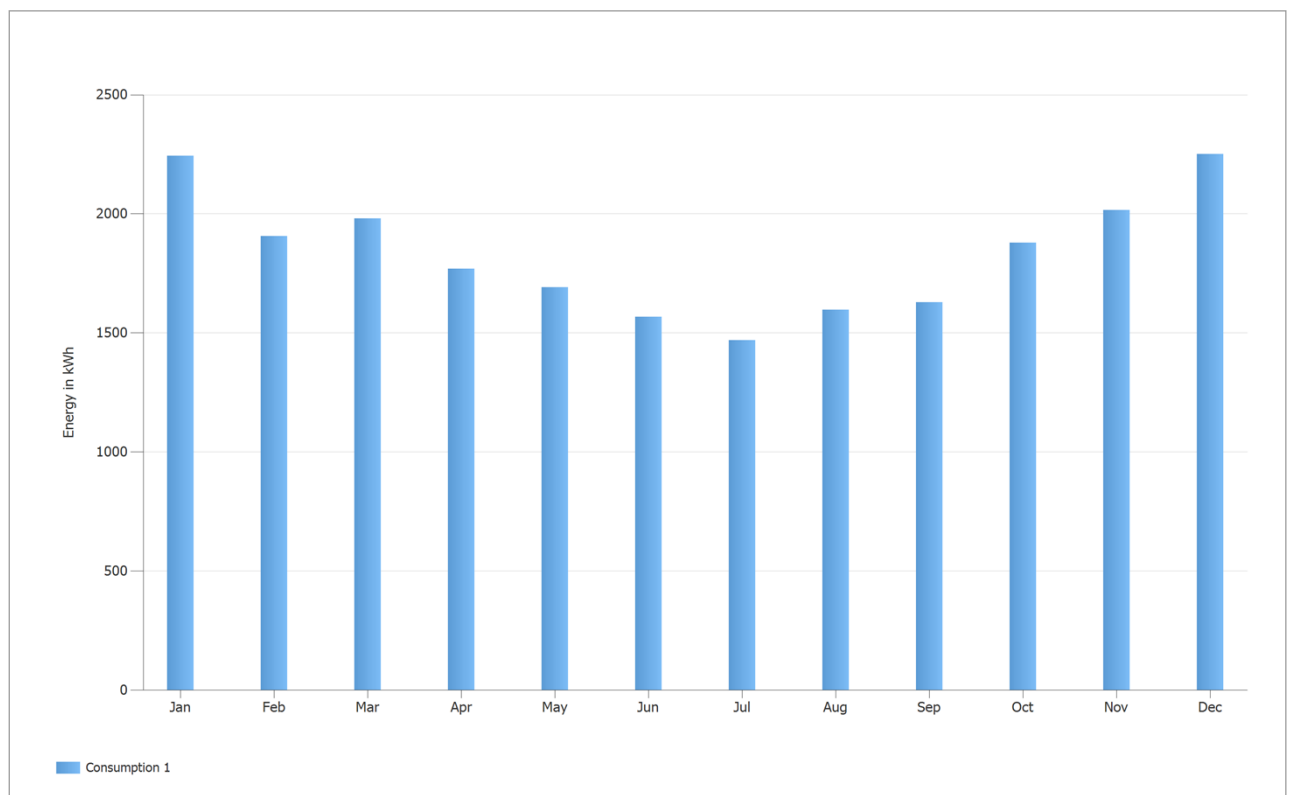


Figure: Consumption

## 2. Module Area - Open Area (Map Section)-Area South

### PV Generator, 2. Module Area - Open Area (Map Section)-Area South

|                      |                                    |
|----------------------|------------------------------------|
| Name                 | Open Area (Map Section)-Area South |
| PV Modules           | 36 x AIKO-A540-MCE60Db (v2)        |
| Manufacturer         | Aiko                               |
| Inclination          | 10 °                               |
| Orientation          | South 180 °                        |
| Installation Type    | Mounted - Open Space               |
| PV Generator Surface | 79.8 m <sup>2</sup>                |



Figure: 2. Module Area - Open Area (Map Section)-Area South

## Horizon Line, 3D Design

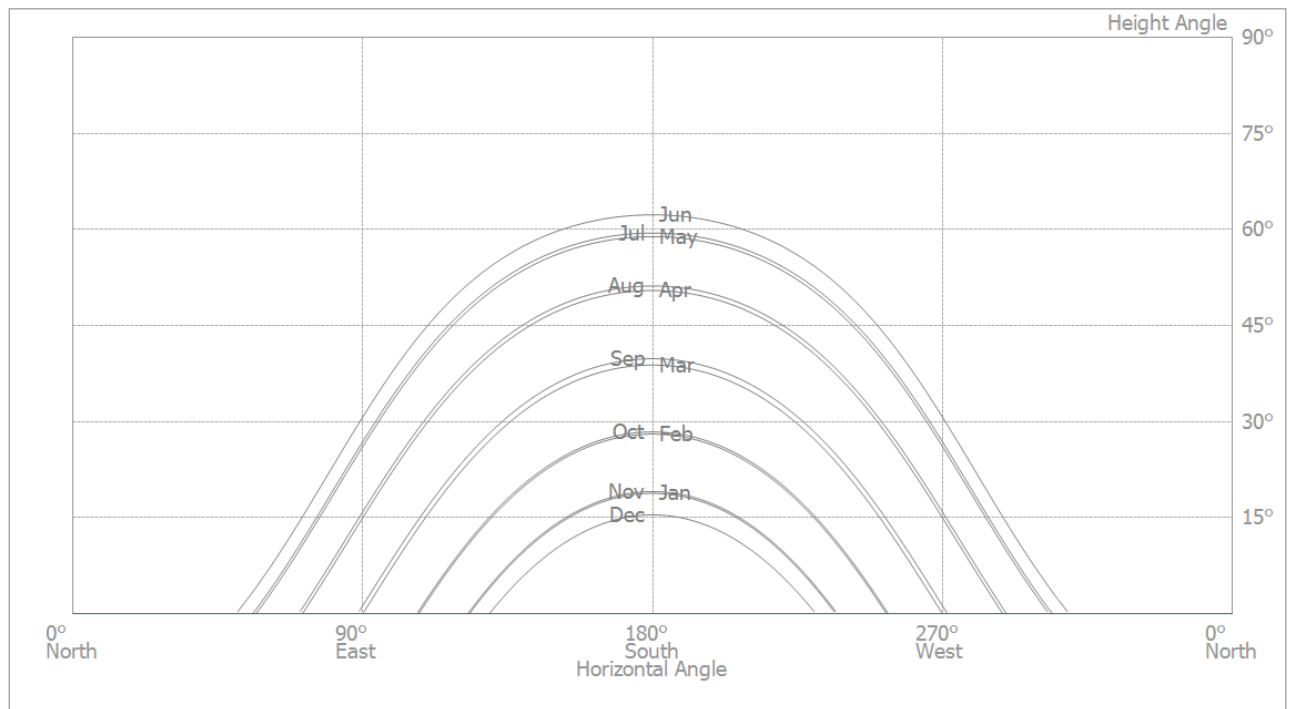


Figure: Horizon (3D Design)

## Inverter configuration

### Configuration 1

|               |                                                                      |
|---------------|----------------------------------------------------------------------|
| Module Areas  | Building 01-Roof Area Southeast + Open Area (Map Section)-Area South |
| Inverter 1    |                                                                      |
| Model         | SigenStor EC 20.0 TP (v1)                                            |
| Manufacturer  | Sigenergy                                                            |
| Quantity      | 1                                                                    |
| Sizing Factor | 153.6 %                                                              |
| Configuration | MPP 1: 1 x 12                                                        |
|               | MPP 2: 1 x 11                                                        |
|               | MPP 3: 1 x 18                                                        |
|               | MPP 4: 1 x 18                                                        |

## AC Mains

### AC Mains

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