



**BRB Electrical**  
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**Customer No.:** Old Post Office  
**Project Name:** Old Post Office  
**Offer no.:** The Old Post Office

Flora West  
The Old Post Office  
Ballintuim  
PH10 7NJ

07/02/2024

## Your PV system from BRB Electrical

### Address of Installation

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The Old Post Office  
Ballintuim  
PH10 7NJ

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**Project Description:**  
Slate Roof  
6 x Panels



## Project Overview



Figure: Overview Image, 3D Design

## PV System

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

Climate Data	Blairgowrie, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
PV Generator Output	2.46 kWp
PV Generator Surface	11.7 m <sup>2</sup>
Number of PV Modules	6
Number of Inverters	1

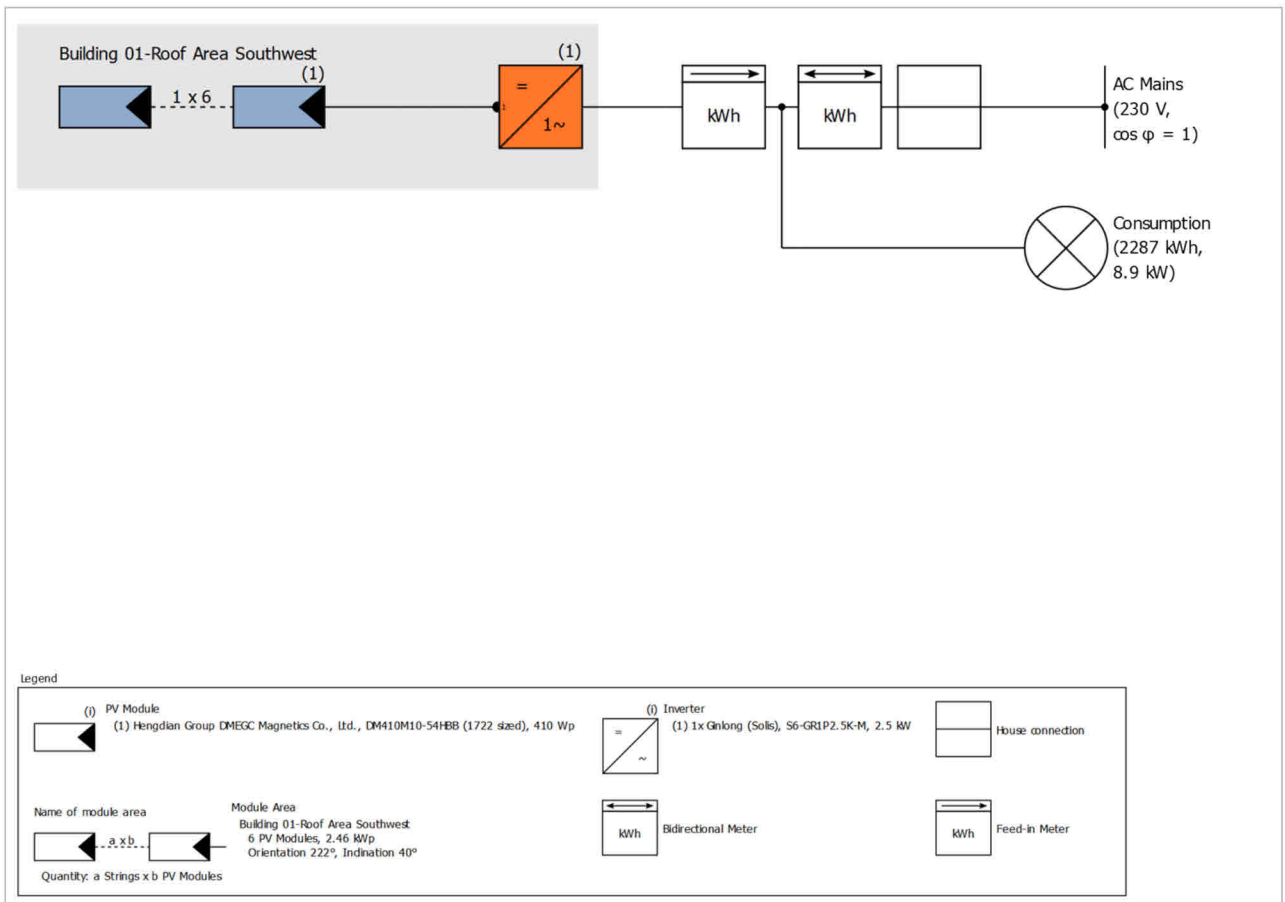


Figure: Schematic diagram

## Production Forecast

### Production Forecast

PV Generator Output	2.46 kWp
Spec. Annual Yield	922.64 kWh/kWp
Performance Ratio (PR)	89.04 %
Yield Reduction due to Shading	4.7 %
PV Generator Energy (AC grid)	2,286 kWh/Year
Own Consumption	543 kWh/Year
Clipping at Feed-in Point	0 kWh/Year
Grid Export	1,743 kWh/Year
Own Power Consumption	23.2 %
CO <sub>2</sub> Emissions avoided	454 kg / year
Level of Self-sufficiency	23.6 %



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## Financial Analysis

### Your Gain

Total investment costs	
Internal Rate of Return (IRR)	
Amortization Period	
Electricity Production Costs	
Energy Balance/Feed-in Concept	Sum

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

### Climate Data

Location Blairgowrie, GBR (2001 - 2020)

Values source Meteonorm 8.2(i)

Resolution of the data 1 h

#### Simulation models used:

- Diffuse Irradiation onto Horizontal Plane Hofmann
- Irradiance onto tilted surface Hay & Davies

### Consumption

Total Consumption	2287 kWh
1-person household	2287 kWh
Load Peak	8.9 kW

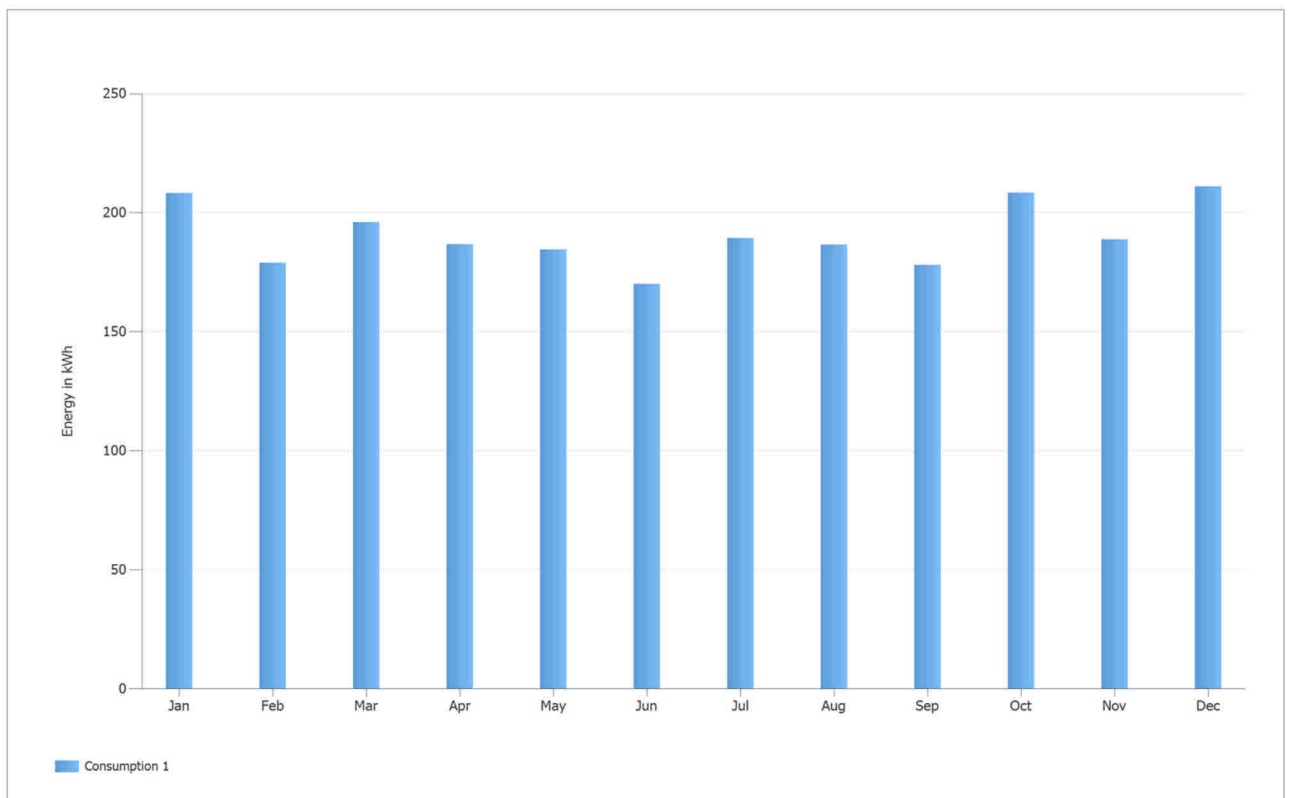


Figure: Consumption

## Module Areas

### 1. Module Area - Building 01-Roof Area Southwest

#### PV Generator, 1. Module Area - Building 01-Roof Area Southwest

Name	Building 01-Roof Area Southwest
PV Modules	6 x DM410M10-54HBB (1722 sized) (v3)
Manufacturer	Hengdian Group DMEGC Magnetics Co., Ltd.
Inclination	40 °
Orientation	Southwest 222 °
Installation Type	Roof parallel
PV Generator Surface	11.7 m <sup>2</sup>



Figure: 1. Module Area - Building 01-Roof Area Southwest

## Horizon Line, 3D Design

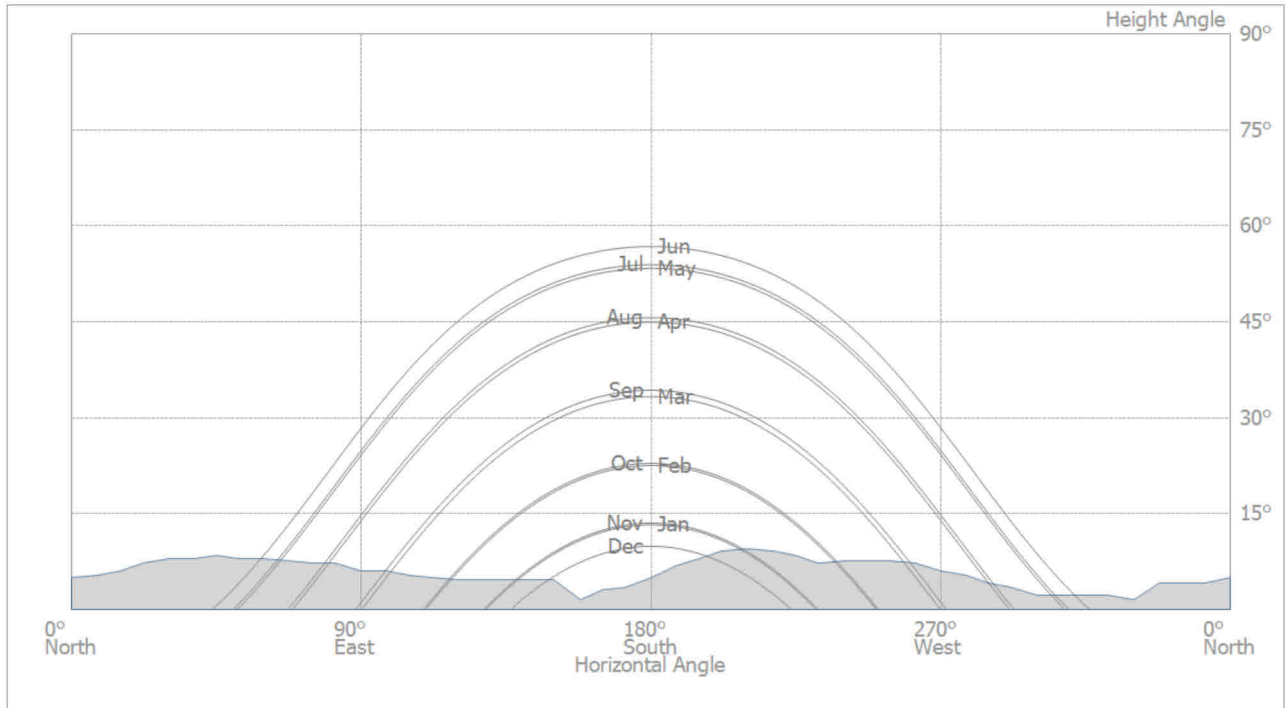


Figure: Horizon (3D Design)

## Inverter configuration

### Configuration 1

Module Area	Building 01-Roof Area Southwest
Inverter 1	
Model	S6-GR1P2.5K-M (v3)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	98.4 %
Configuration	MPP 1: 1 x 6

## AC Mains

### AC Mains

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

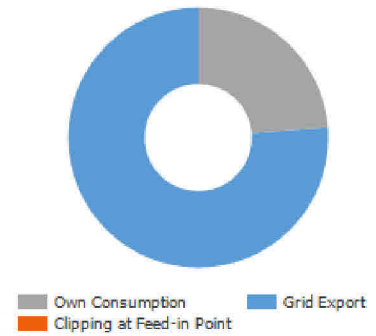
# Simulation Results

## Results Total System

### PV System

PV Generator Output	2.46 kWp
Spec. Annual Yield	922.64 kWh/kWp
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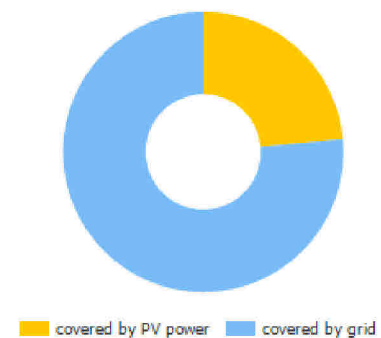
PV Generator Energy (AC grid)



### Appliances

Appliances	2,287 kWh/Year
Standby Consumption (Inverter)	17 kWh/Year
Total Consumption	2,304 kWh/Year
covered by PV power	543 kWh/Year
covered by grid	1,761 kWh/Year
Solar Fraction	23.6 %

Total Consumption



### Level of Self-sufficiency

Total Consumption	2,304 kWh/Year
covered by grid	1,761 kWh/Year
Level of Self-sufficiency	23.6 %



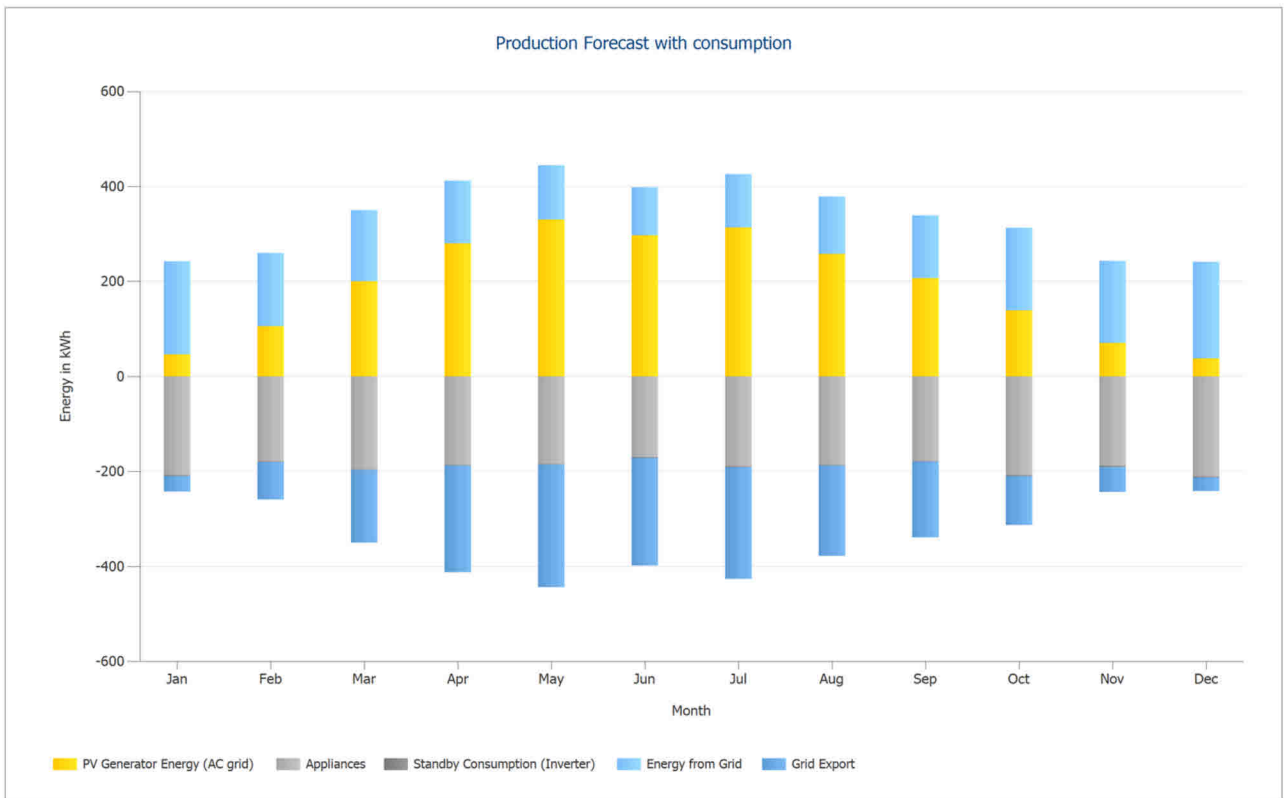


Figure: Production Forecast with consumption

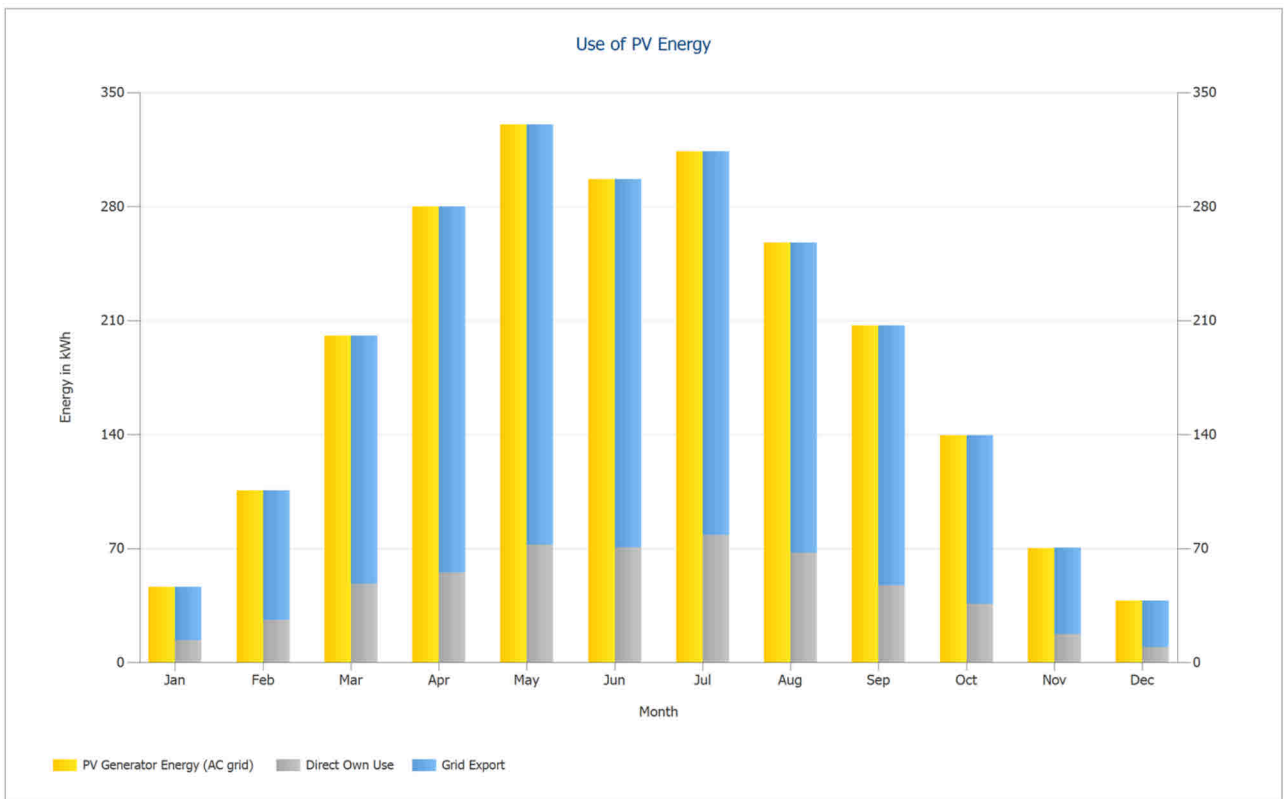


Figure: Use of PV Energy

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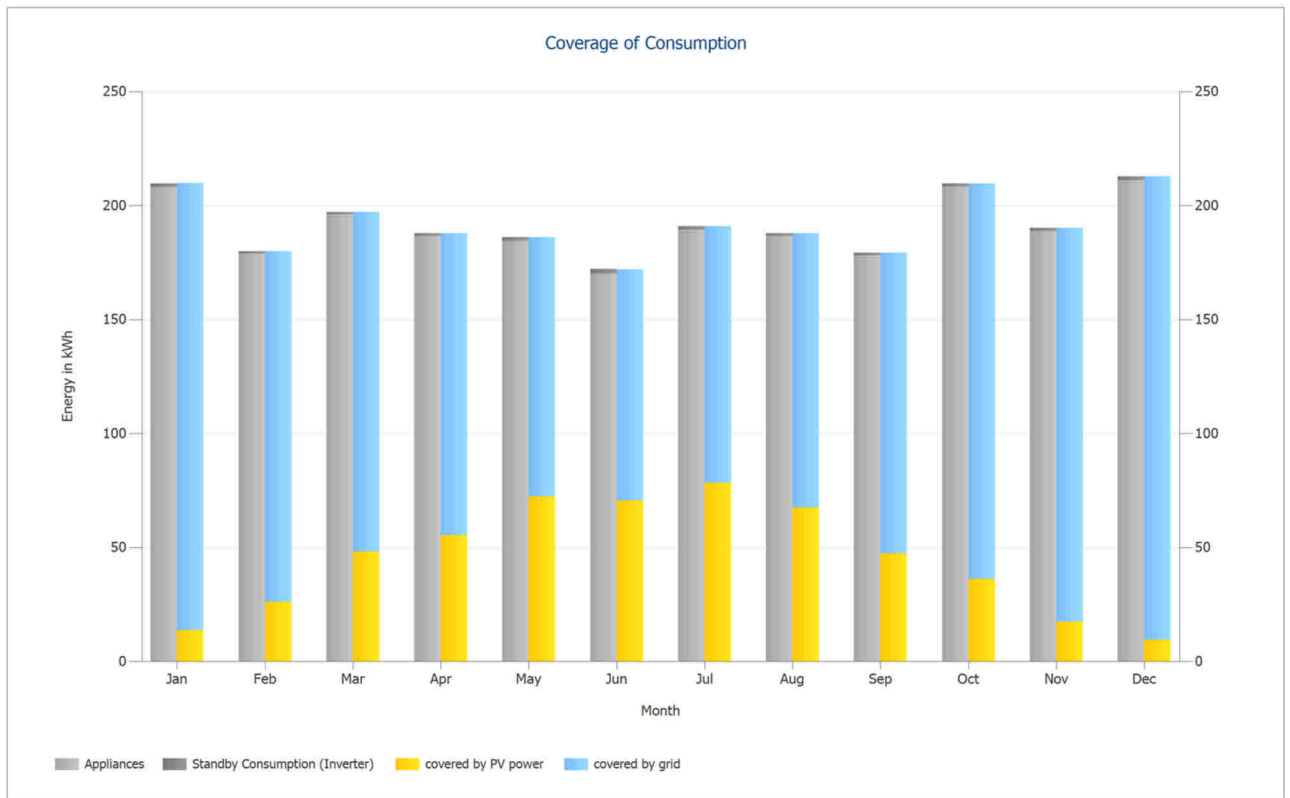


Figure: Coverage of Consumption



# Financial Analysis

## Overview

### System Data

Grid Export in the first year (incl. module degradation)
PV Generator Output
Start of Operation of the System
Assessment Period
Interest on Capital

### Economic Parameters

Internal Rate of Return (IRR)
Accrued Cash Flow (Cash Balance)
Amortization Period
Electricity Production Costs

### Payment Overview

Specific Investment Costs
Investment Costs
One-off Payments
Incoming Subsidies
Annual Costs
Other Revenue or Savings

### Remuneration and Savings

Total Payment from Utility in First Year
First year savings
SEG - Centrica/British Gas - Export and Earn Flex - SEG eligible
Validity
Specific feed-in / export Remuneration
Feed-in / Export Tariff

### Example Private (Example)

Energy Price
Base Price
Inflation Rate for Energy Price



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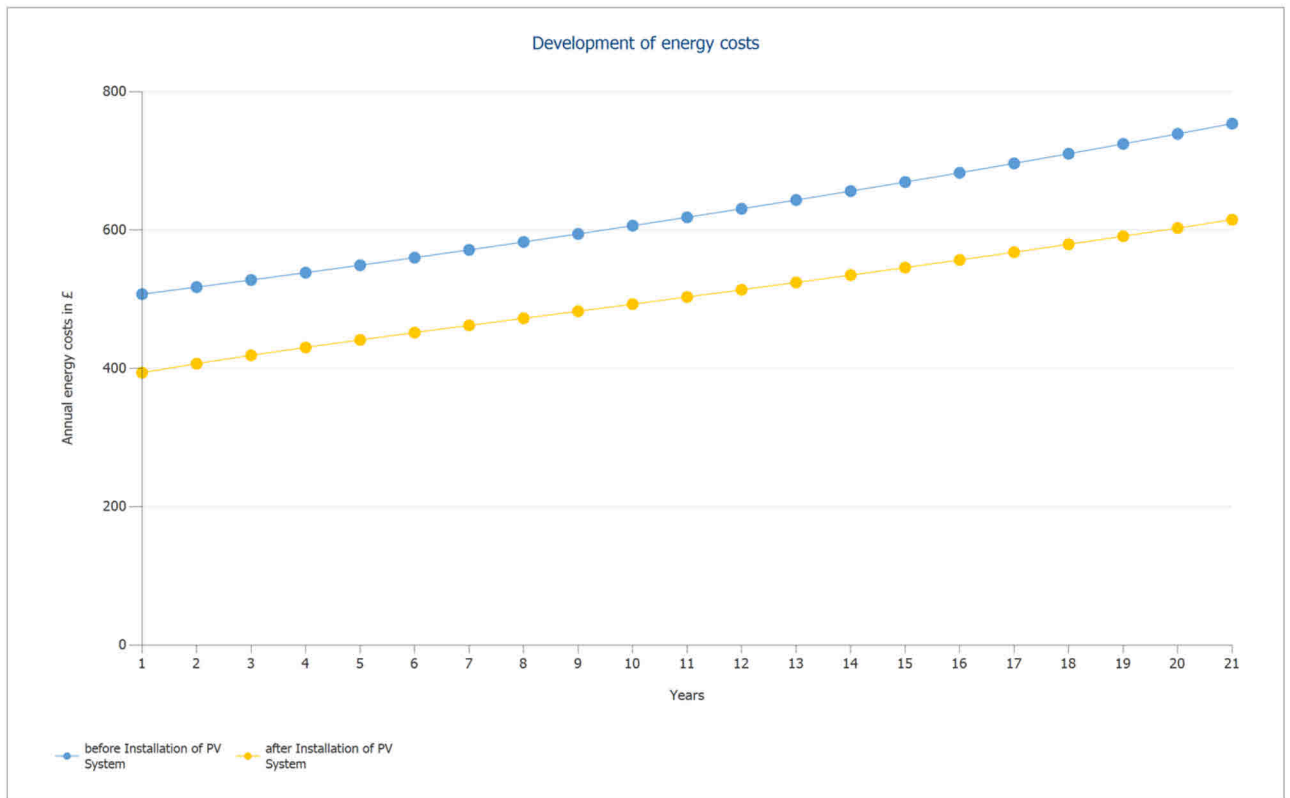


Figure: Development of energy costs

## Old Post Office

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Offer Number: The Old Post Office



### Cash flow

#### Cash flow

Investments	
Feed-in / Export Tariff	
Electricity Savings	
<b>Annual Cash Flow</b>	
Accrued Cash Flow (Cash Balance)	

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Feed-in / Export Tariff	
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#### Cash flow

Investments	
Feed-in / Export Tariff	
Electricity Savings	
<b>Annual Cash Flow</b>	
Accrued Cash Flow (Cash Balance)	

Degradation and inflation rates are applied on a monthly basis over the entire observation period. This is done in the first year.

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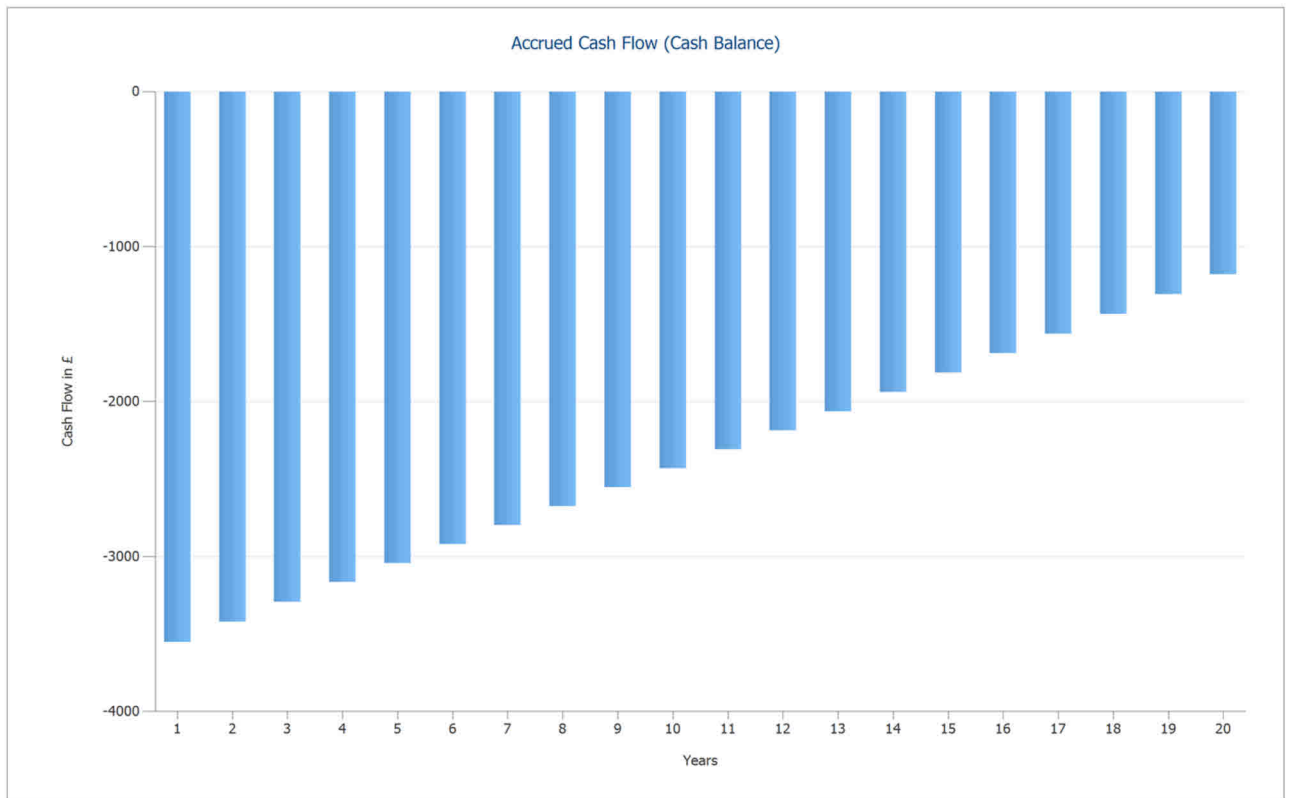


Figure: Accrued Cash Flow (Cash Balance)



# Plans and parts list

## Circuit Diagram

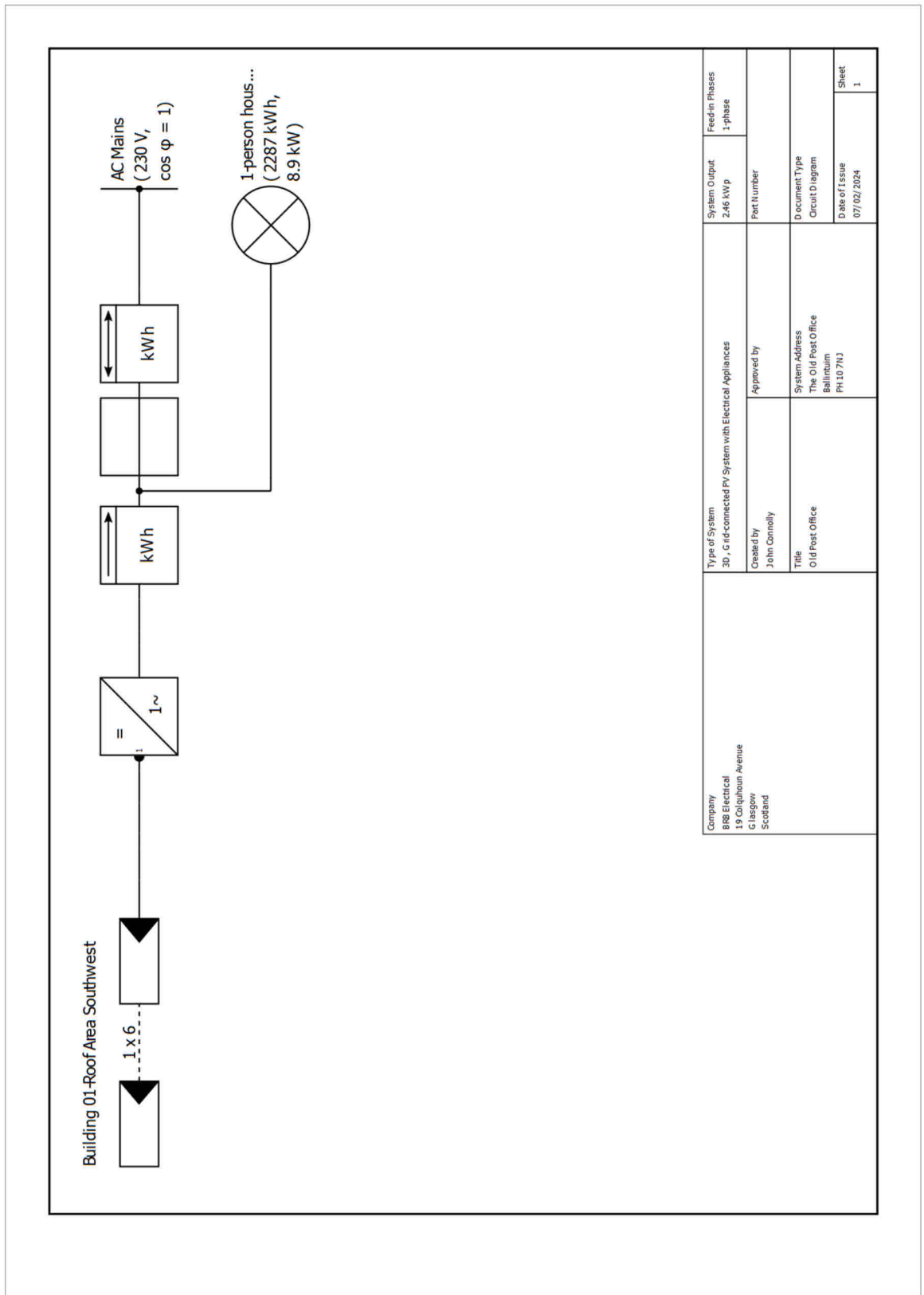


Figure: Circuit Diagram



## Overview plan

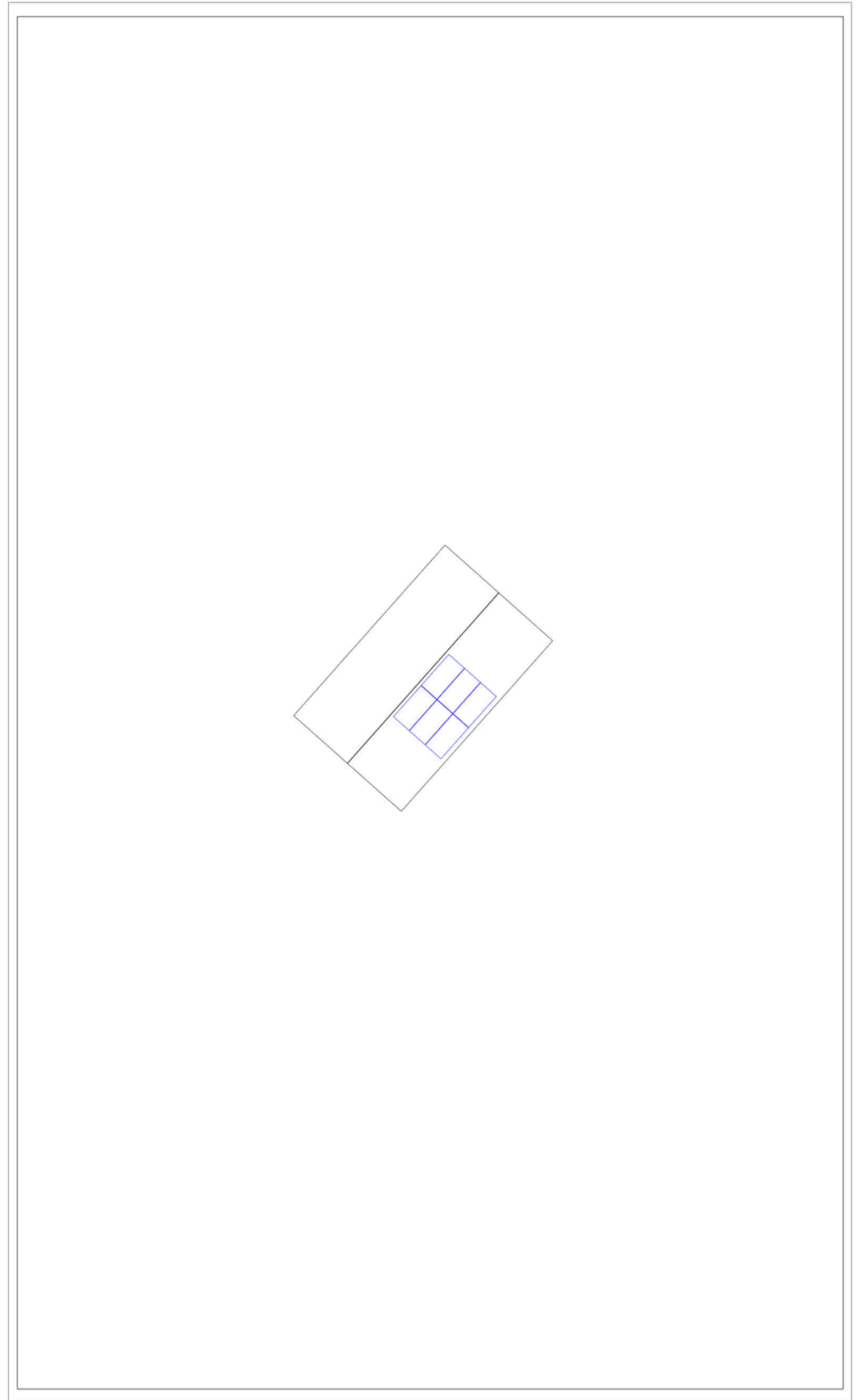


Figure: Overview plan



## Dimensioning Plan

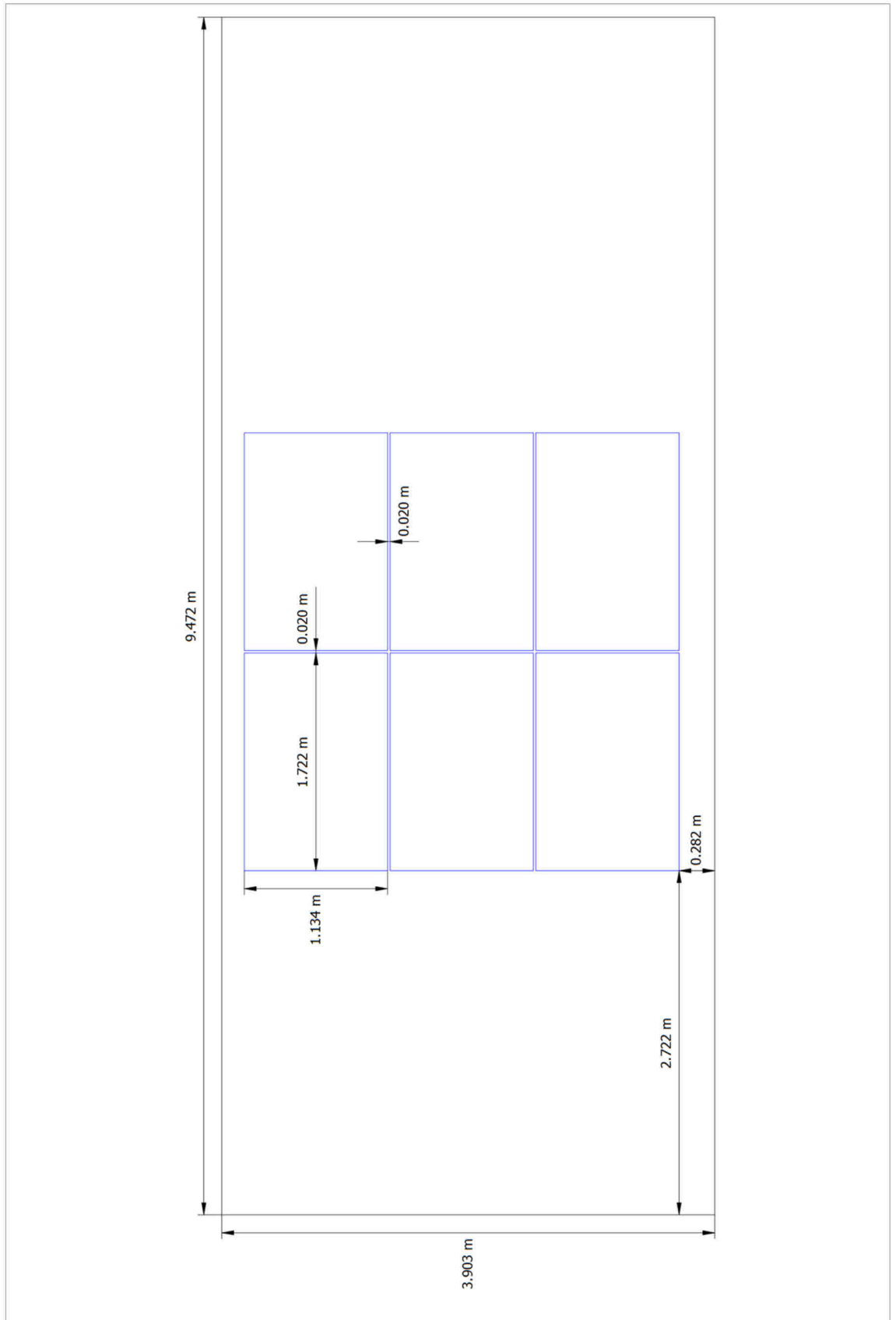


Figure: Building 01 - Roof Area Southwest

# String Plan

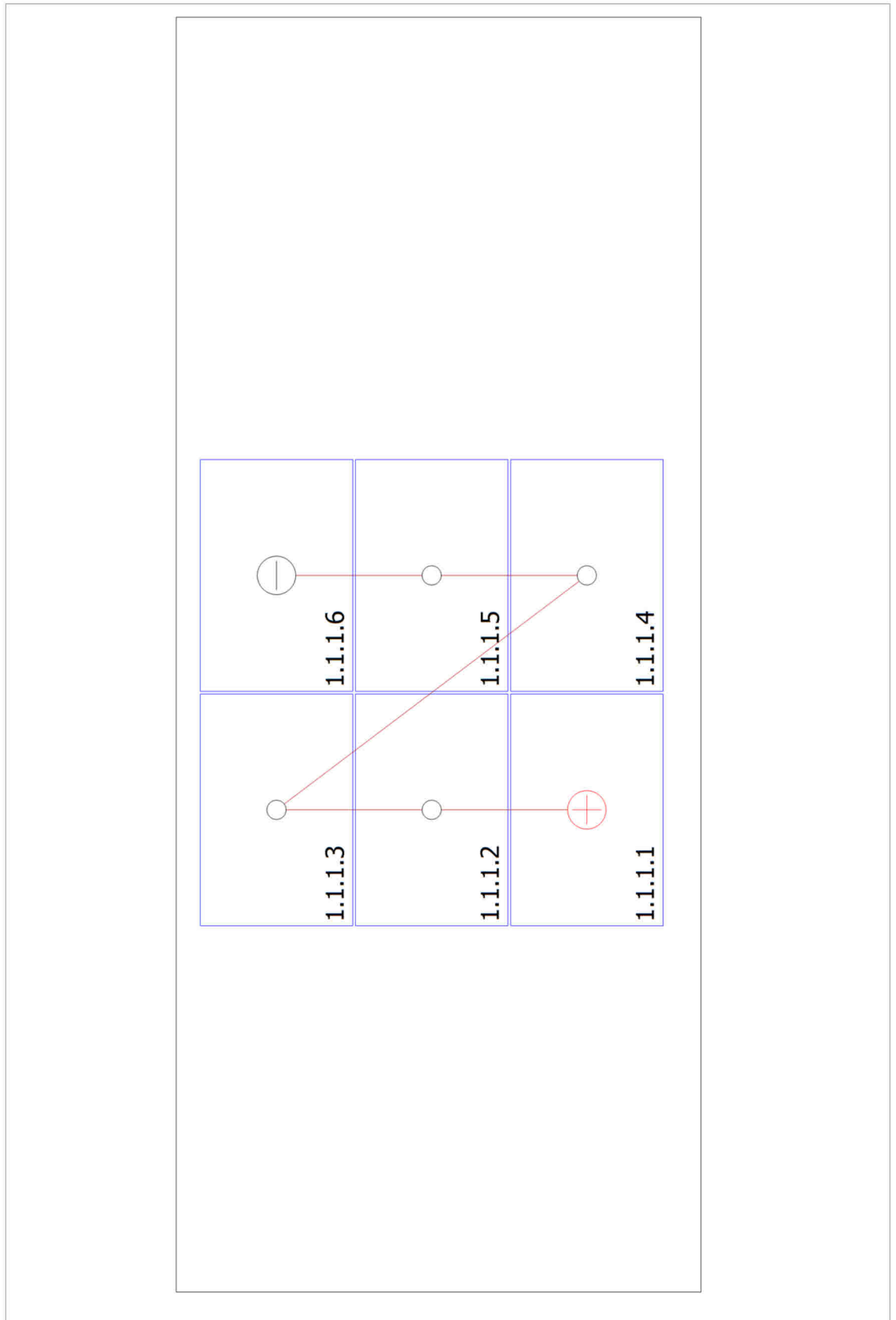


Figure: Building 01 - Roof Area Southwest



## Parts list

### Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Hengdian Group DMEGC Magnetics Co., Ltd.	DM410M10-54HBB (1722 sized)	6	Piece
2	Inverter		Ginlong (Solis)	S6-GR1P2.5K-M	1	Piece
3	Components			Feed-in Meter	1	Piece
4	Components			House connection	1	Piece
5	Components			Bidirectional Meter	1	Piece