Patrik Frimodig

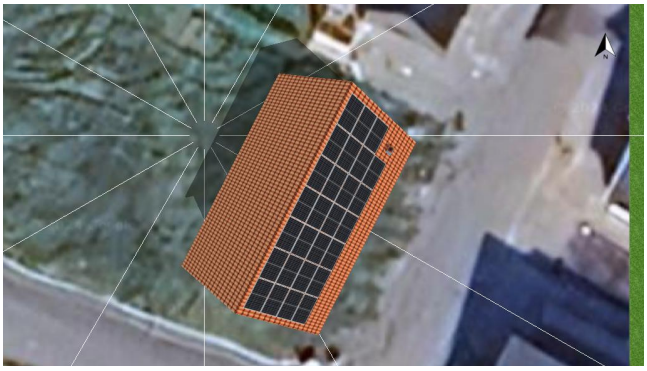
**Customer No.:** DAggstigen 18

2024-11-13

# Your PV system

## Address of Installation

Daggstigen 18



# Project Overview

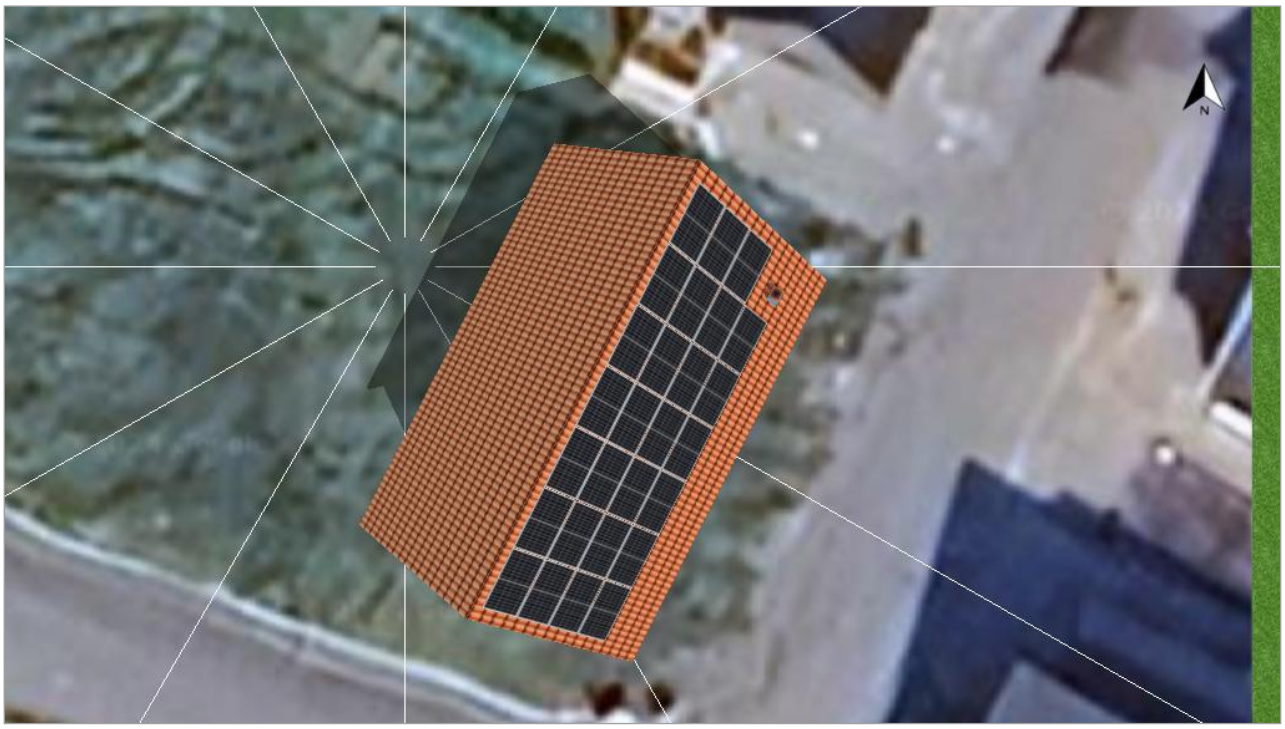


Figure: Overview Image, 3D Design

## PV System

3D, Grid-connected PV System with Electrical Appliances

| | | |
|---|---|---|
| Climate Data | Halmstad (AFB), SWE (1996 - 2015) | |
| Values source | Meteonorm 8.1 | |
| PV Generator Output | 11,75 | kWp |
| PV Generator Surface | 52,7 | m² |
| Number of PV Modules | 27 | |
| Number of Inverters | 1 | |

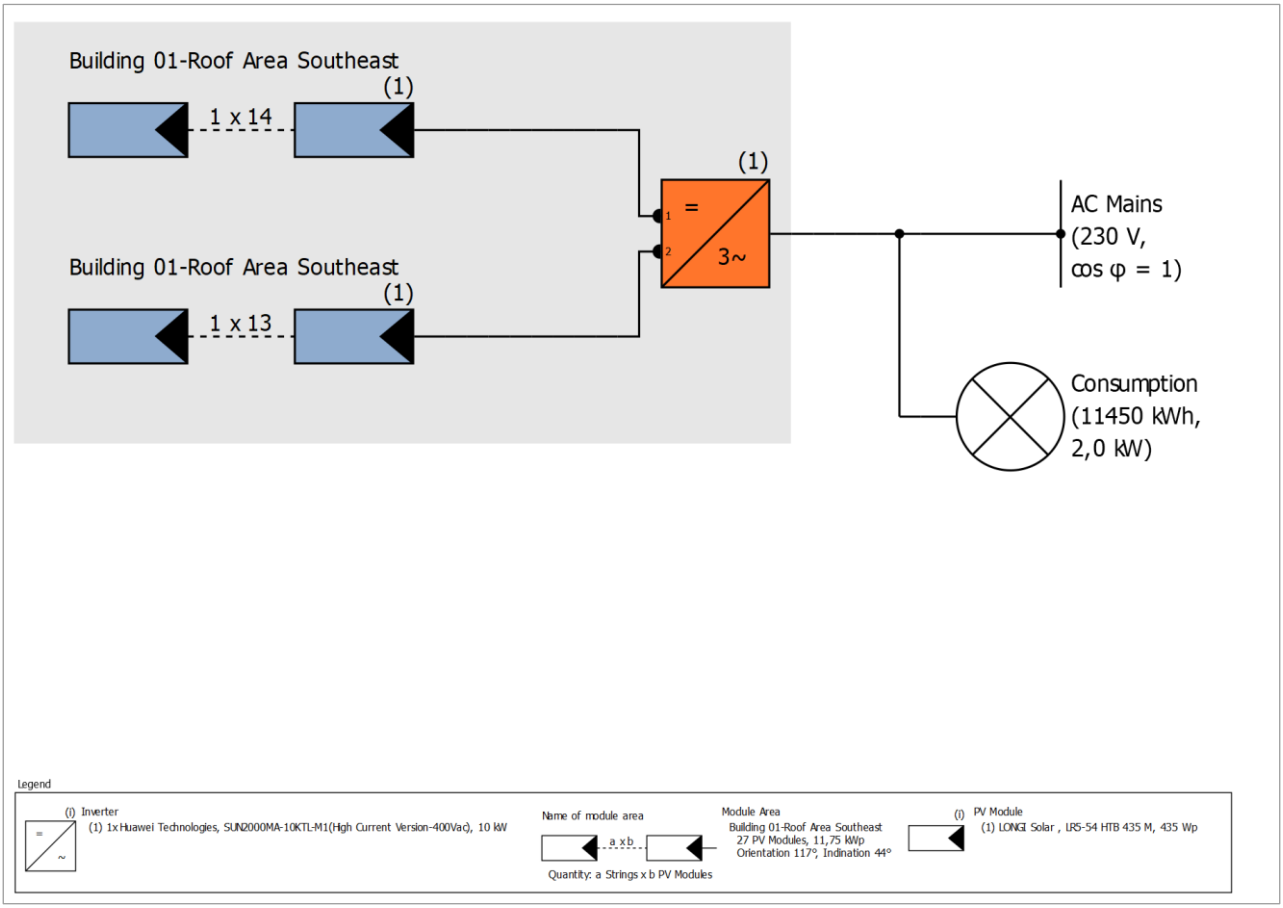



Figure: Schematic diagram

# Production Forecast

| Production Forecast | | |
|---|---|---|
| PV Generator Output | 11,75 | kWp |
| Spec. Annual Yield | 966,83 | kWh/kWp |
| Performance Ratio (PR) | 94,52 | % |
| Yield Reduction due to Shading | 0,2 | % |
| PV Generator Energy (AC grid) | 11 388 | kWh/Year |
| Own Consumption | 3 360 | kWh/Year |
| Down-regulation at Feed-in Point | 0 | kWh/Year |
| Grid Export | 8 028 | kWh/Year |
| Own Power Consumption | 29,3 | % |
| $CO_2$ Emissions avoided | 5 337 | kg / year |
| Level of Self-sufficiency | 29,3 | % |

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 | Halmstad (AFB), SWE (1996 - 2015) |
| Values source | Meteonorm 8.1 |
| Resolution of the data | 1 h |
| Simulation models used: | |
| - Diffuse Irradiation onto Horizontal Plane | Hofmann |
| - Irradiance onto tilted surface | Hay & Davies |

### Consumption

| | |
|---|---|
| Total Consumption | 11450 kWh |
| New | 11450 kWh |
| Load Peak | 2 kW |

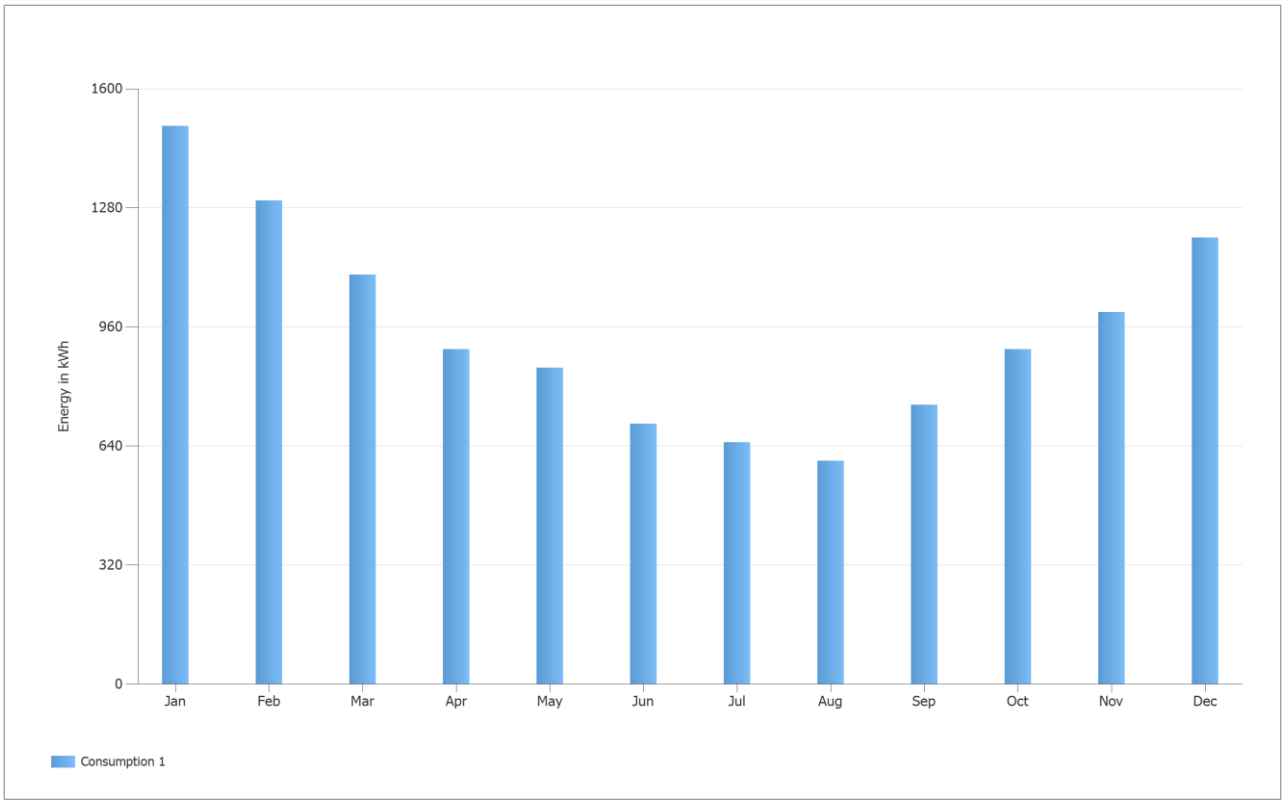



Figure: Consumption

# Module Areas

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

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

| | |
|---|---|
| Name | Building 01-Roof Area Southeast |
| PV Modules | 27 x LR5-54 HTB 435 M (v3) |
| Manufacturer | LONGI Solar |
| Inclination | 44 ° |
| Orientation | Southeast 117 ° |
| Installation Type | Roof parallel |
| PV Generator Surface | 52,7 m² |

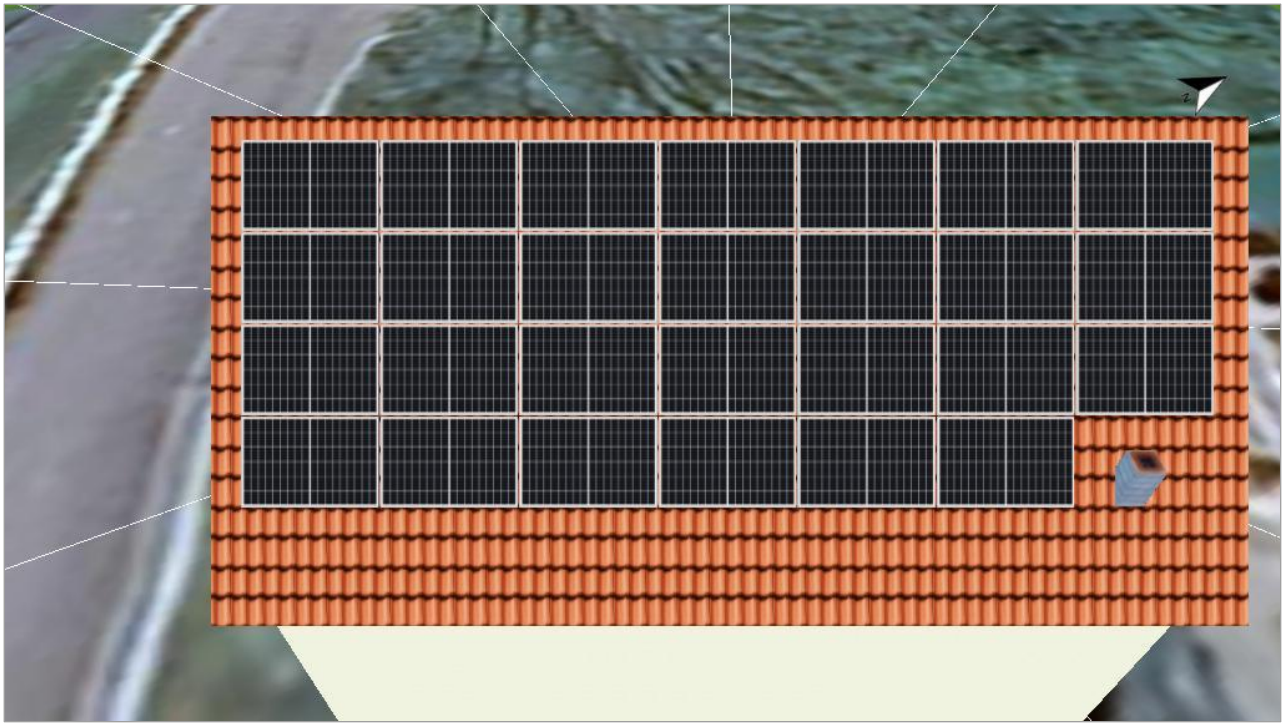


Figure: 1. Module Area - Building 01-Roof Area Southeast

# Horizon Line, 3D Design

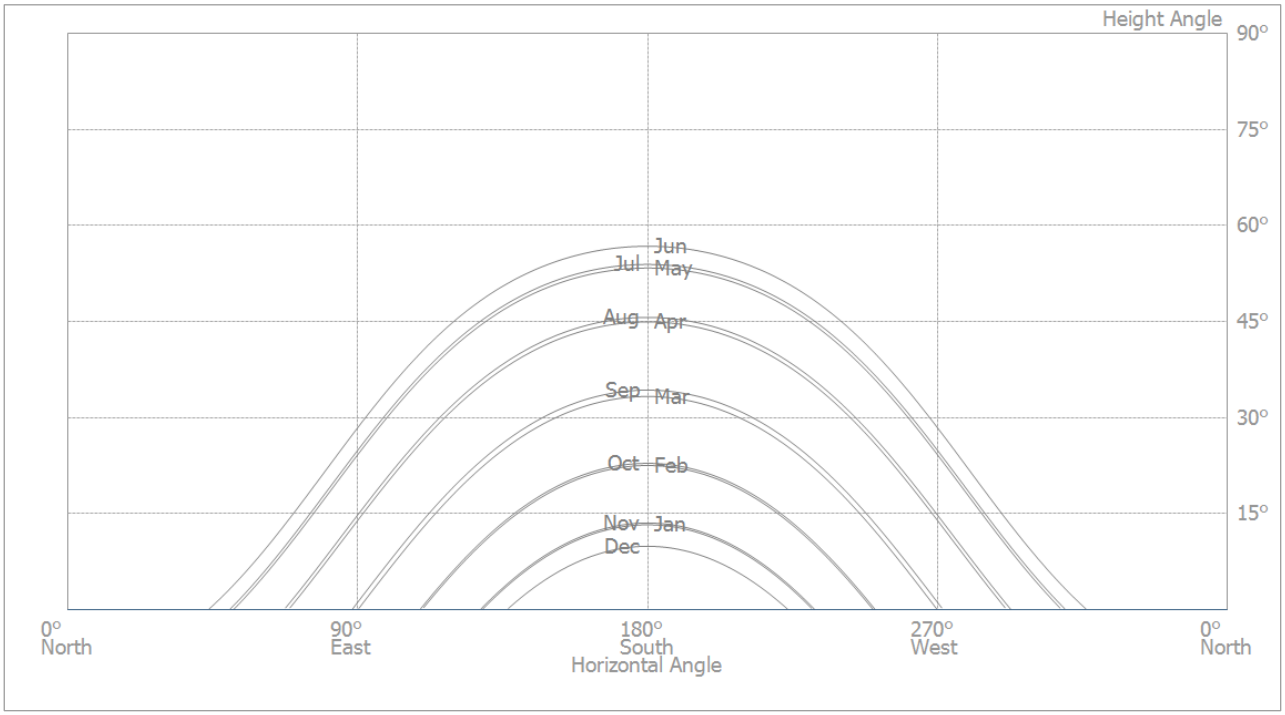



Figure: Horizon (3D Design)

# Inverter configuration

| Configuration 1 | |
|---|---|
| Module Area | Building 01-Roof Area Southeast |
| Inverter 1 | |
| Model | SUN2000MA-10KTL-M1(High Current Version-400Vac) (v2) |
| Manufacturer | Huawei Technologies |
| Quantity | 1 |
| Sizing Factor | 117,5 % |
| Configuration | MPP 1: 1 x 14 |
| | MPP 2: 1 x 13 |

# AC Mains

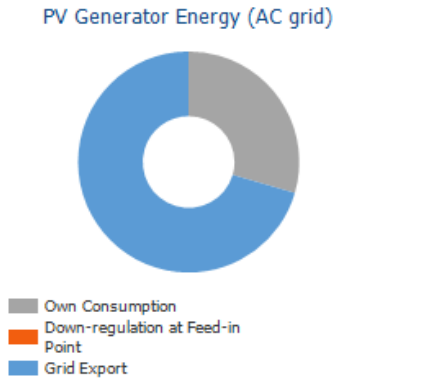
| AC Mains | |
|---|---|
| Number of Phases | 3 |
| Mains voltage between phase and neutral | 230 V |
| Displacement Power Factor (cos phi) | +/- 1 |

# Simulation Results

## Results Total System

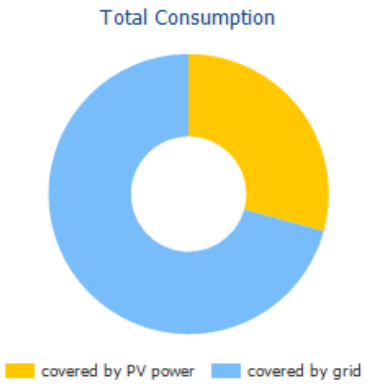
### PV System

| | | |
|---|---|---|
| PV Generator Output | 11,75 | kWp |
| Spec. Annual Yield | 966,83 | kWh/kWp |
| Performance Ratio (PR) | 94,52 | % |
| Yield Reduction due to Shading | 0,2 | % |
| PV Generator Energy (AC grid) | 11 388 | kWh/Year |
| Own Consumption | 3 360 | kWh/Year |
| Down-regulation at Feed-in Point | 0 | kWh/Year |
| Grid Export | 8 028 | kWh/Year |
| Own Power Consumption | 29,3 | % |
| $CO_2$ Emissions avoided | 5 337 | kg / year |




### Appliances

| | | |
|---|---|---|
| Appliances | 11 450 | kWh/Year |
| Standby Consumption (Inverter) | 32 | kWh/Year |
| Total Consumption | 11 482 | kWh/Year |
| covered by PV power | 3 360 | kWh/Year |
| covered by grid | 8 123 | kWh/Year |
| Solar Fraction | 29,3 | % |

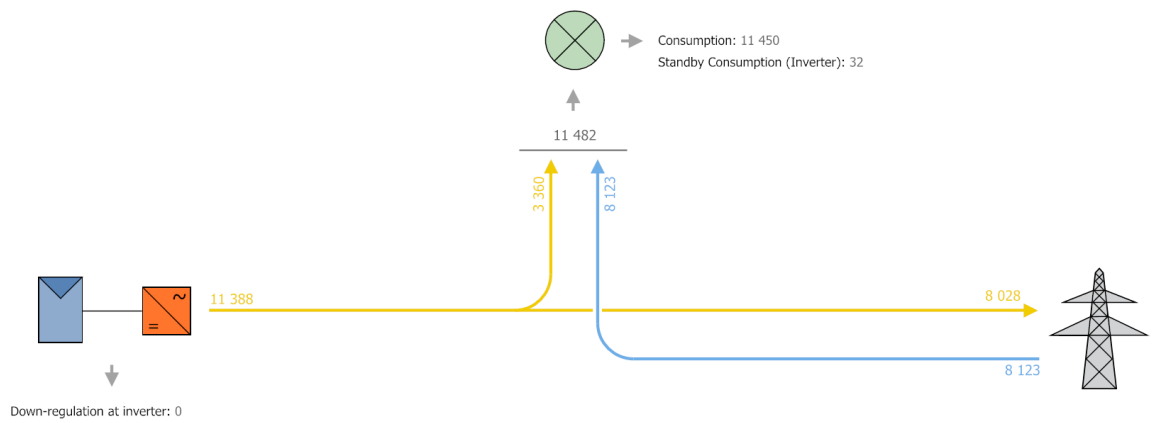



### Level of Self-sufficiency

| | | |
|---|---|---|
| Total Consumption | 11 482 | kWh/Year |
| covered by grid | 8 123 | kWh/Year |
| Level of Self-sufficiency | 29,3 | % |

## Energy Flow Graph

Project: Daggstigen 18 beräkning 27 paneler




All values in kWh

Small deviations in the totals can occur due to rounding created with PV*SOL

Figure: Energy flow

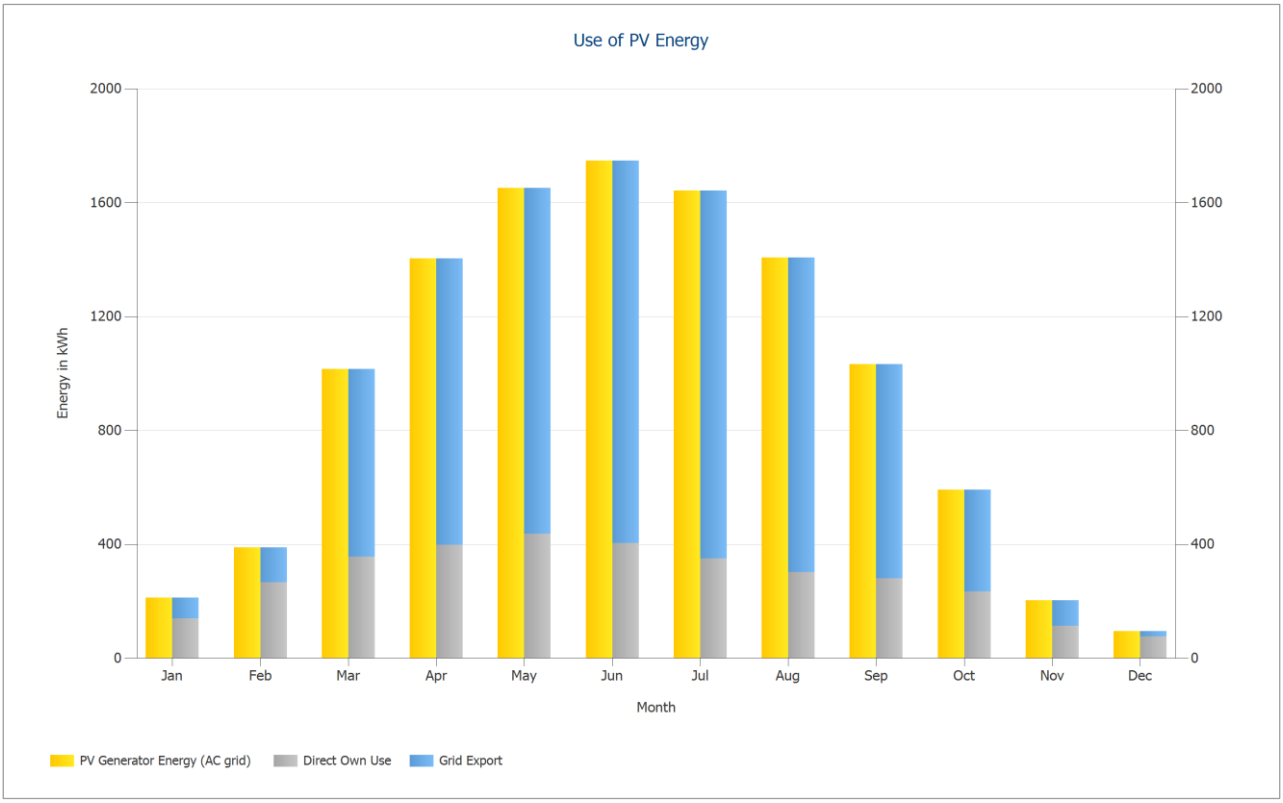



Figure: Use of PV Energy

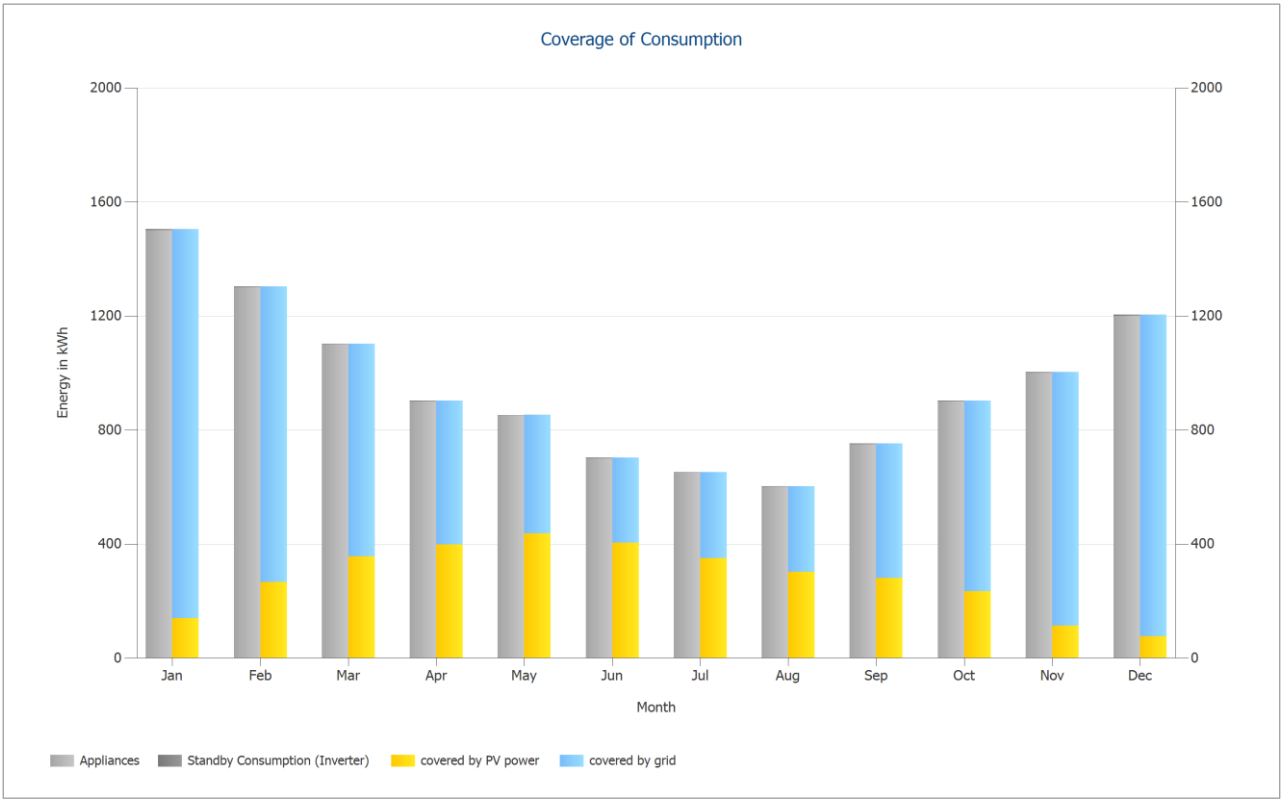



Figure: Coverage of Consumption

Figure: Development of energy costs

# Plans and parts list

## Circuit Diagram

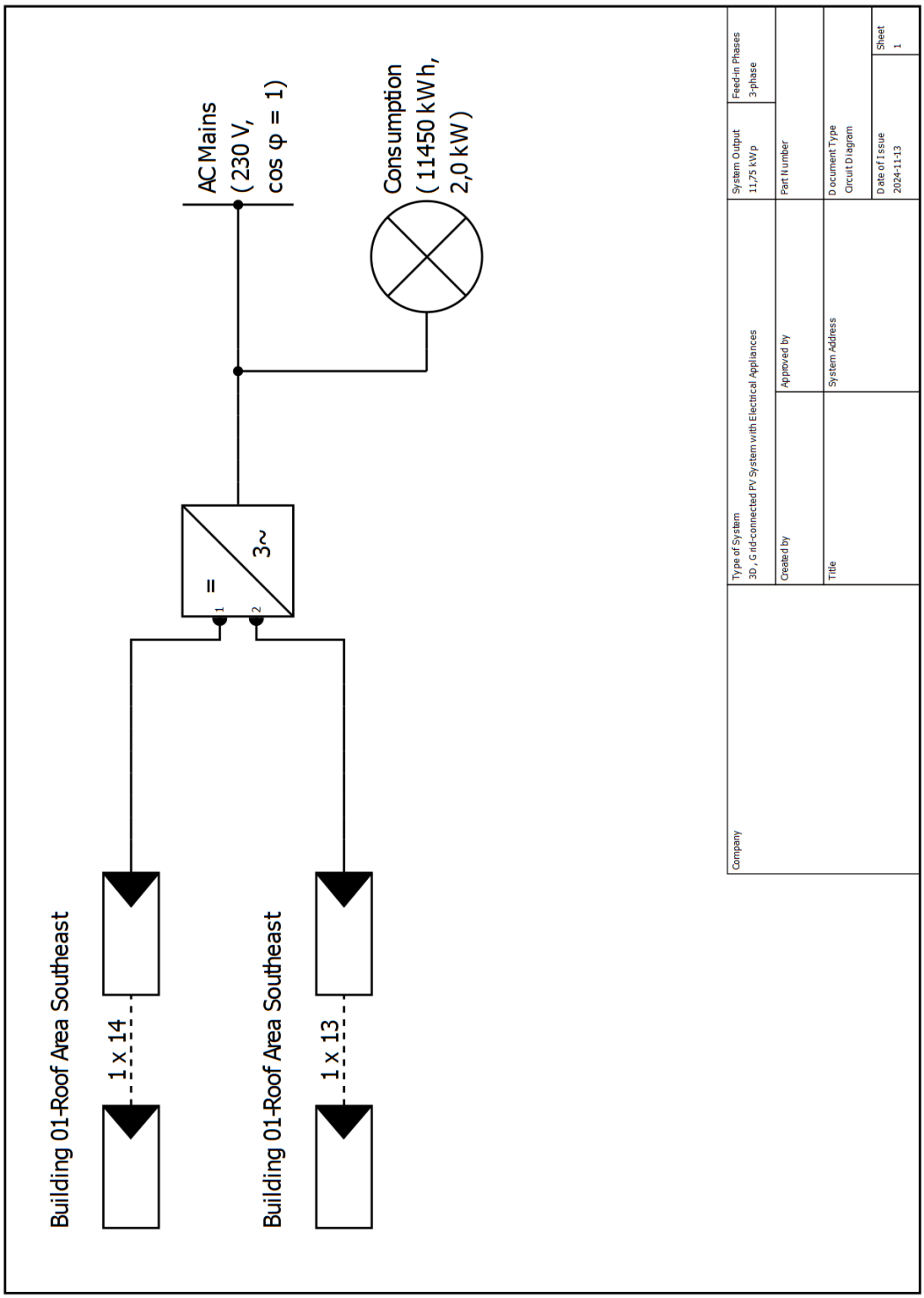



Figure: Circuit Diagram

# Overview plan

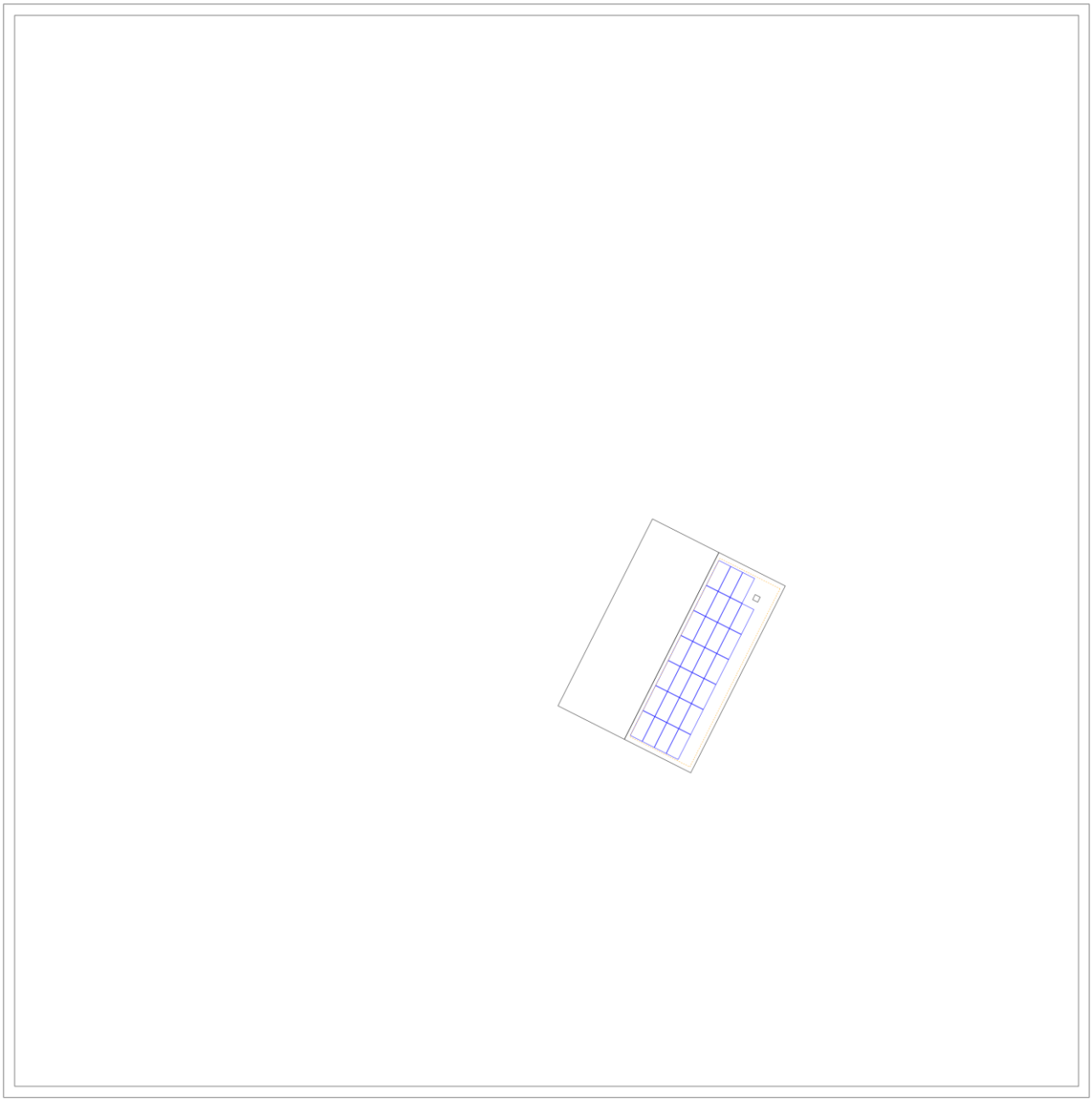


Figure: Overview plan

# Dimensioning Plan

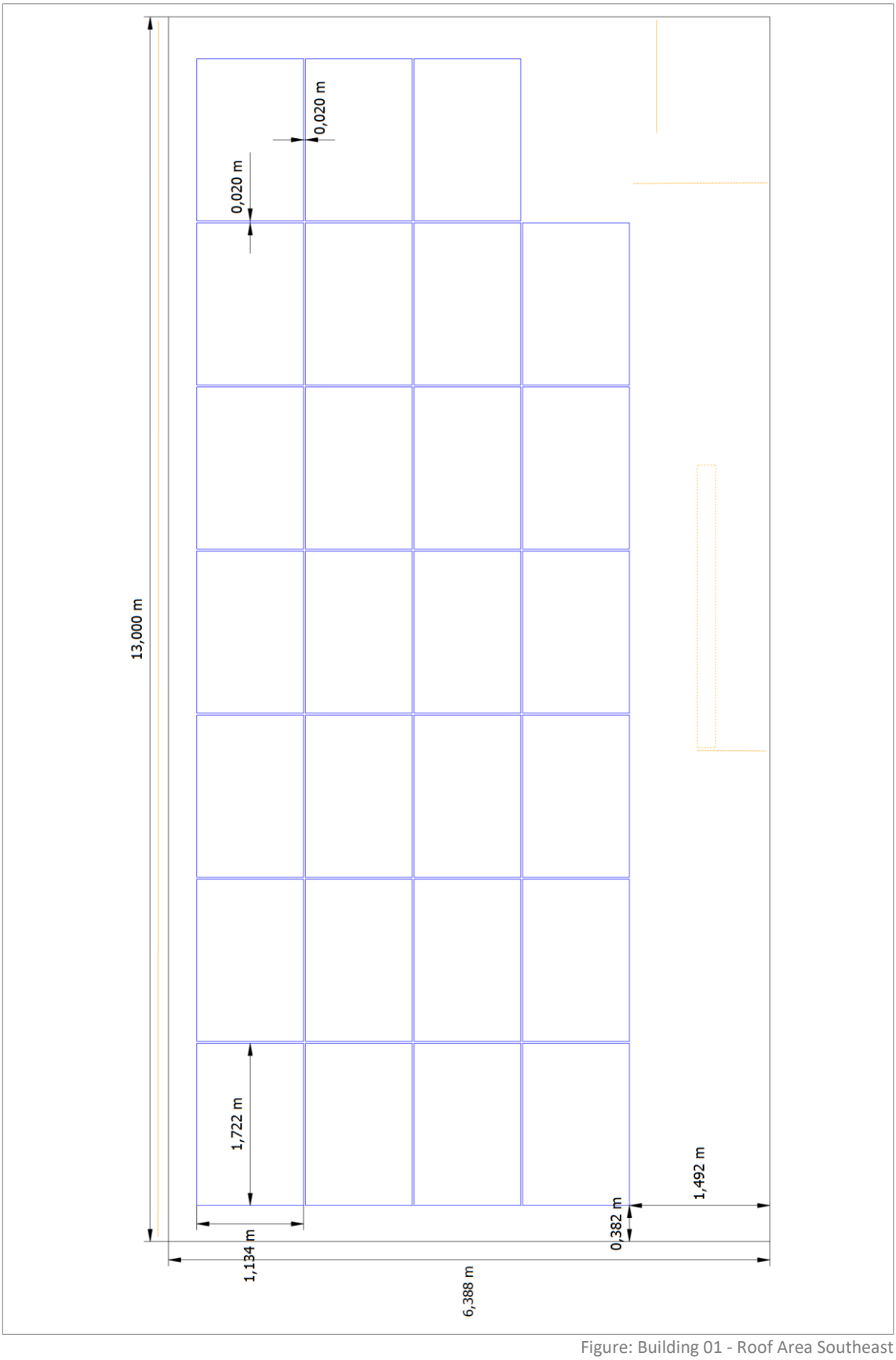



Figure: Building 01 - Roof Area Southeast

# String Plan

# Parts list

Parts list

| # | Type | Item number | Manufacturer | Name | Quantity | Unit |
|---|---|---|---|---|---|---|
| 1 | PV Module | | LONGI Solar | LR5-54 HTB 435 M | 27 | Piece |
| 2 | Inverter | | Huawei Technologies | SUN2000MA-10KTL-M1(High Current Version-400Vac) | 1 | Piece |