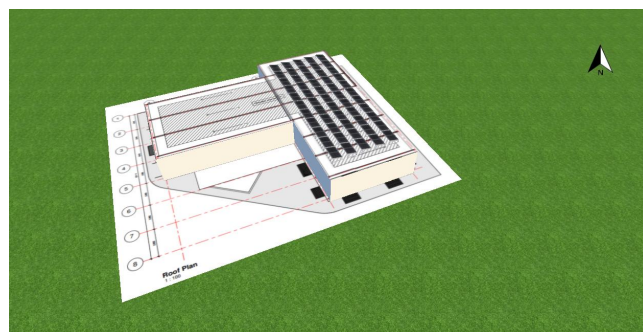


18/06/2024

Your PV system

Address of Installation

Holt Lane, Wokingham, Berkshire, RG41 1EE



Project Overview

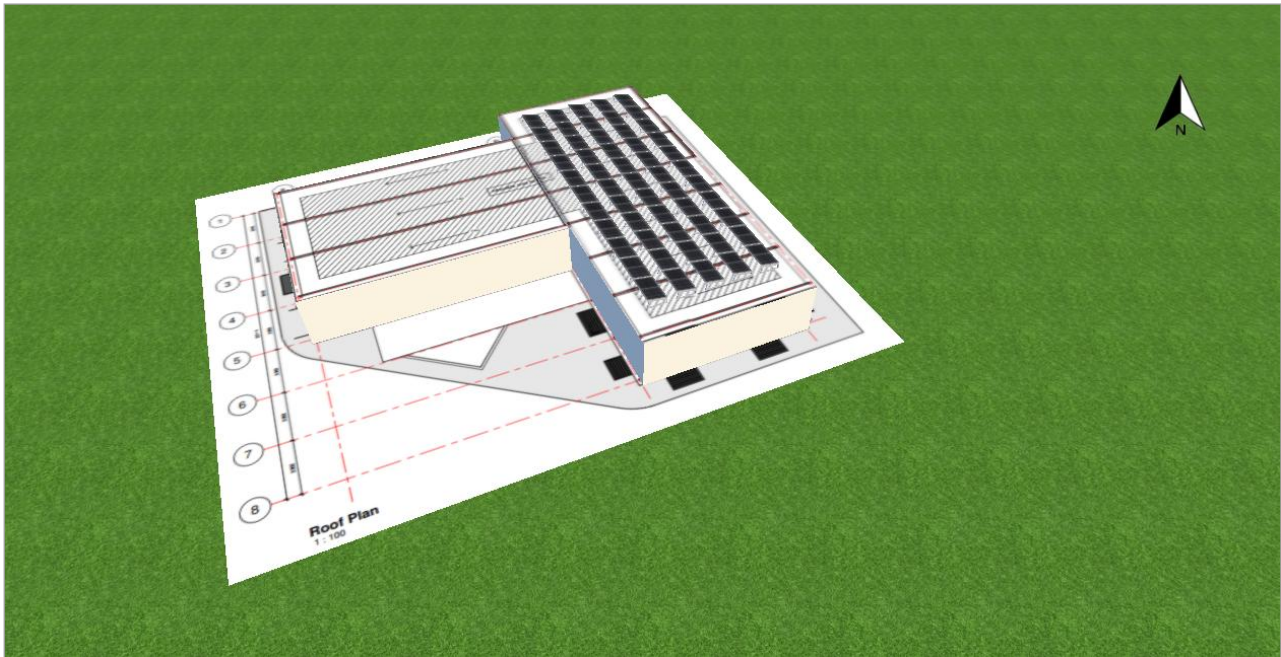


Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances

Climate Data	Wokingham, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
PV Generator Output	24.2 kWp
PV Generator Surface	109.9 m²
Number of PV Modules	55
Number of Inverters	1

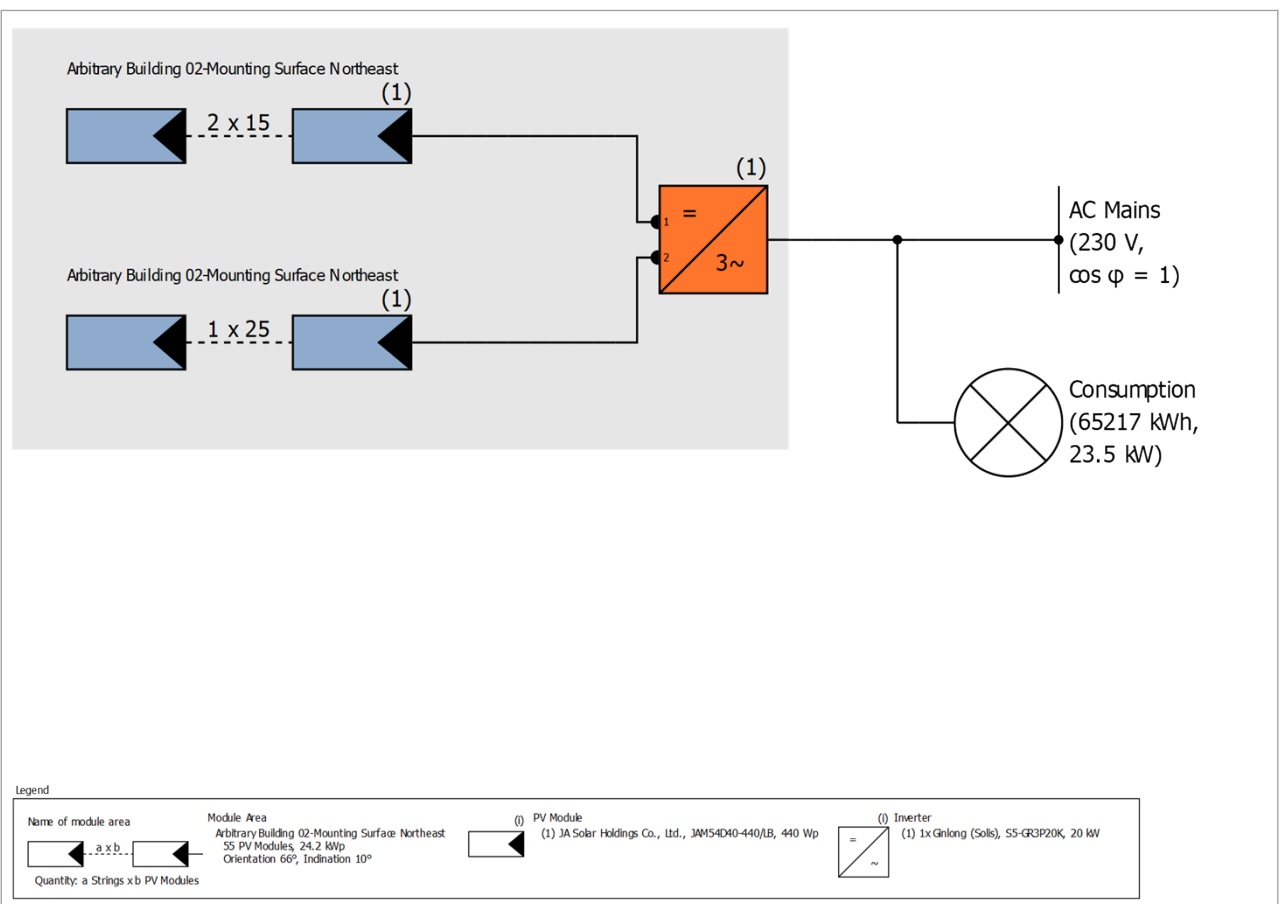


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	24.20 kWp
Spec. Annual Yield	887.74 kWh/kWp
Performance Ratio (PR)	90.14 %
Yield Reduction due to Shading	2.0 %
PV Generator Energy (AC grid)	21,496 kWh/Year
Own Consumption	19,576 kWh/Year
Clipping at Feed-in Point	0 kWh/Year
Grid Export	1,919 kWh/Year
Own Power Consumption	91.1 %
CO ₂ Emissions avoided	4,383 kg / year
Level of Self-sufficiency	30.0 %

Financial Analysis

Your Gain

Total investment costs	29,040.00 £
Internal Rate of Return (IRR)	12.06 %
Amortization Period	9.0 Years
Electricity Production Costs	0.0884 £/kWh
Energy Balance/Feed-in Concept	Surplus Feed-in

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	Wokingham, 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	65217 kWh
School 10000 m ²	65217 kWh
Load Peak	23.5 kW

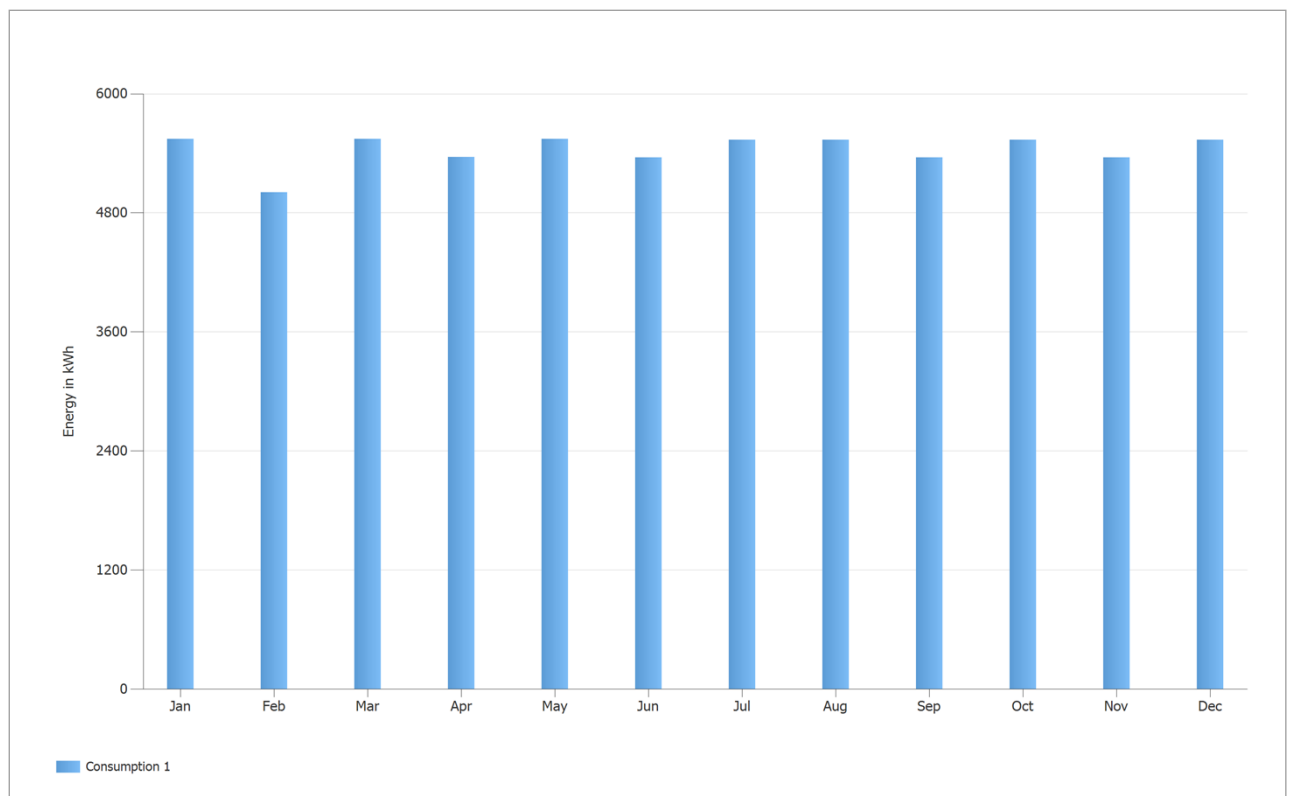


Figure: Consumption

Module Areas

1. Module Area - Arbitrary Building 02-Mounting Surface Northeast

PV Generator, 1. Module Area - Arbitrary Building 02-Mounting Surface Northeast

Name	Arbitrary Building 02-Mounting Surface Northeast
PV Modules	55 x JAM54D40-440/LB (v1)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	Northeast 66 °
Installation Type	Mounted - Roof
PV Generator Surface	109.9 m ²

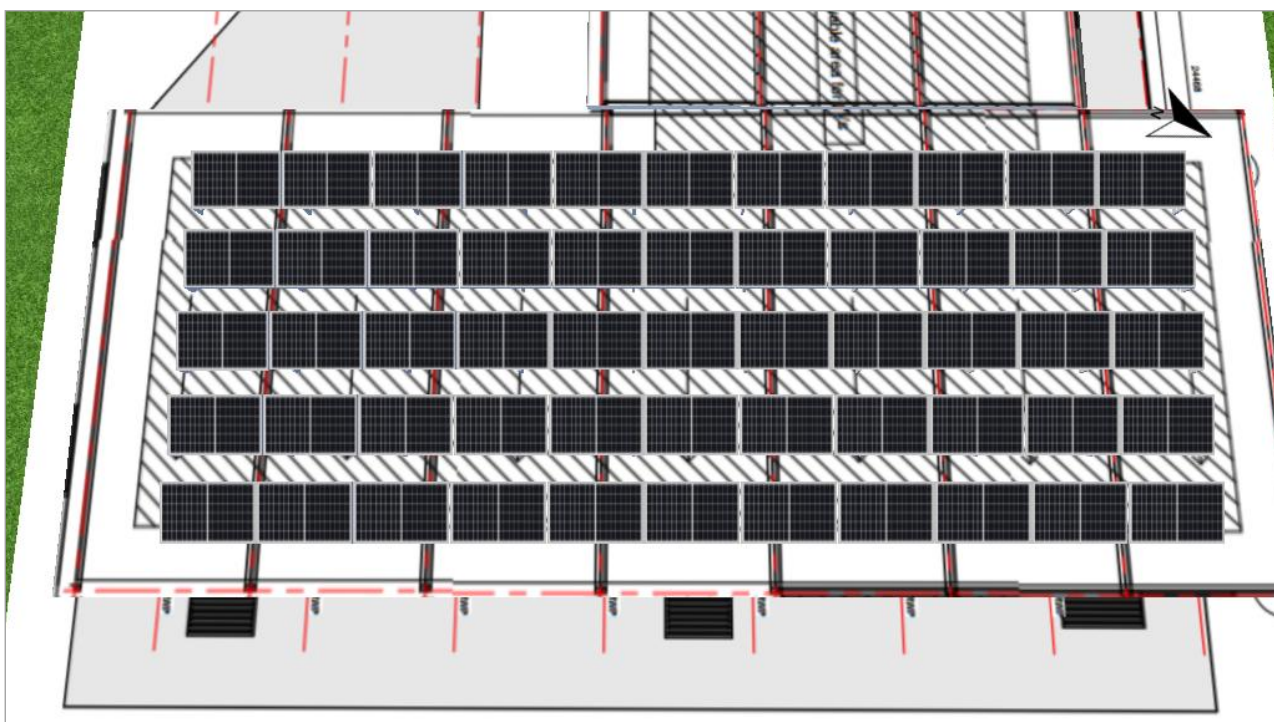


Figure: 1. Module Area - Arbitrary Building 02-Mounting Surface Northeast

Horizon Line, 3D Design

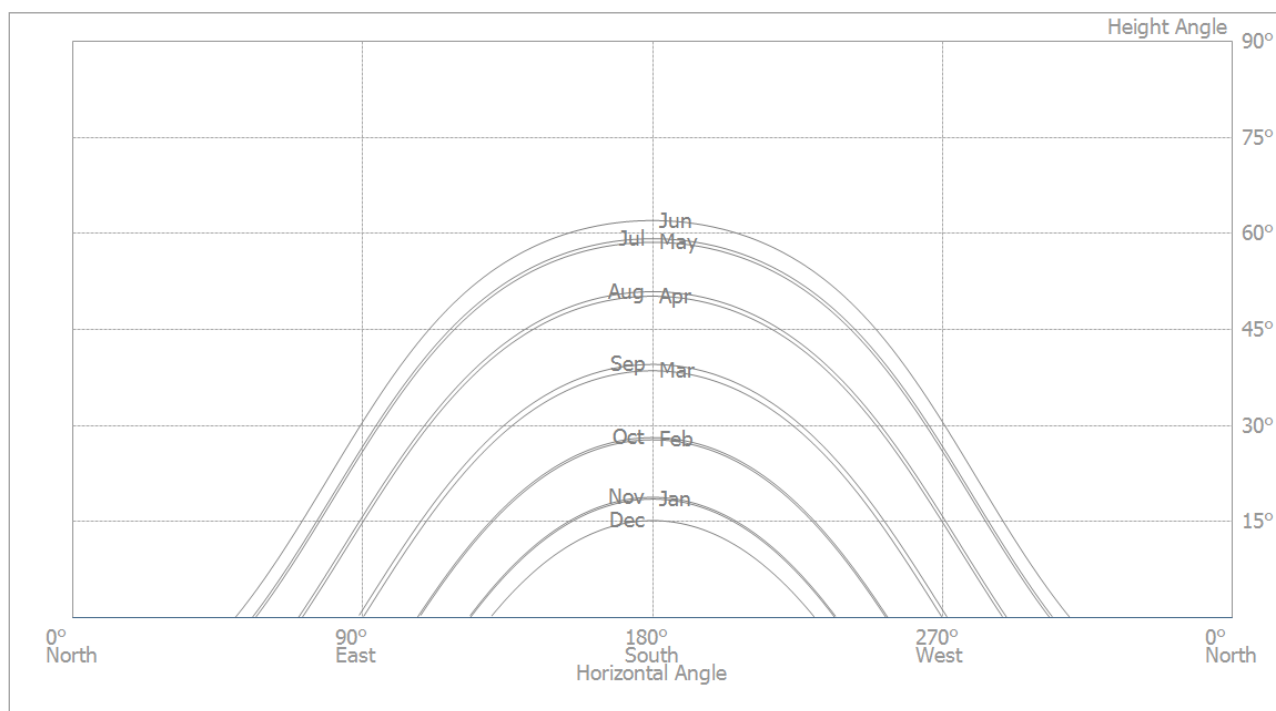


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Area	Arbitrary Building 02-Mounting Surface Northeast
Inverter 1	
Model	S5-GR3P20K (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	121 %
Configuration	MPP 1: 2 x 15
	MPP 2: 1 x 25

AC Mains

AC Mains

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

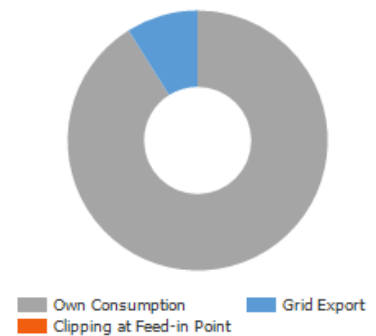
Simulation Results

Results Total System

PV System

PV Generator Output	24.20 kWp
Spec. Annual Yield	887.74 kWh/kWp
Performance Ratio (PR)	90.14 %
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CO ₂ Emissions avoided	4,383 kg / year

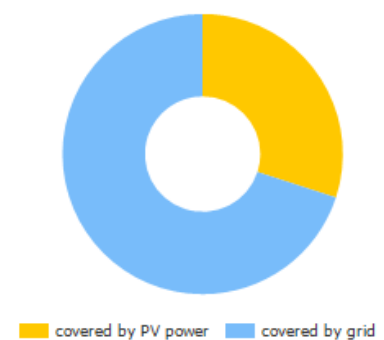
PV Generator Energy (AC grid)



Appliances

Appliances	65,217 kWh/Year
Standby Consumption (Inverter)	12 kWh/Year
Total Consumption	65,229 kWh/Year
covered by PV power	19,576 kWh/Year
covered by grid	45,653 kWh/Year
Solar Fraction	30.0 %

Total Consumption

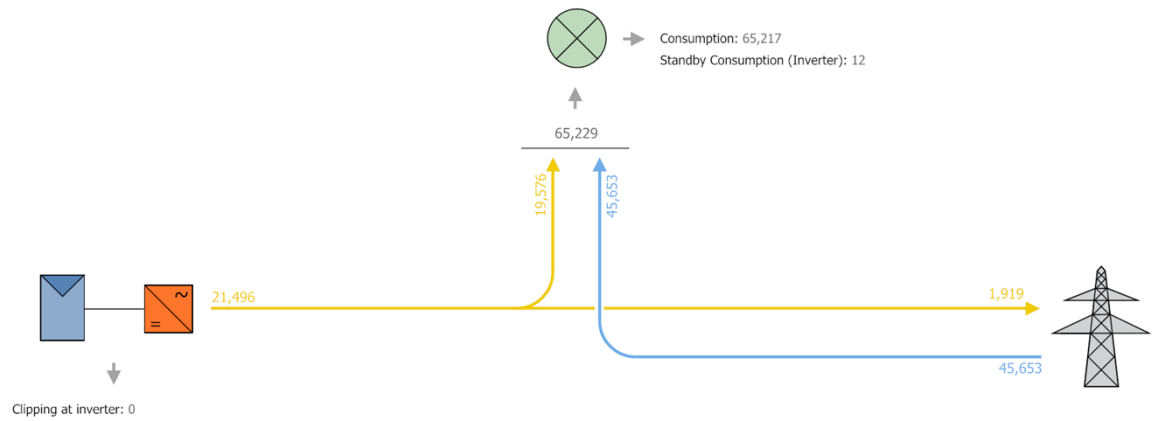


Level of Self-sufficiency

Total Consumption	65,229 kWh/Year
covered by grid	45,653 kWh/Year
Level of Self-sufficiency	30.0 %

Energy Flow Graph

Project: Holt School MPAN 532 440W 18.06.2024 V4



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

Figure: Energy flow

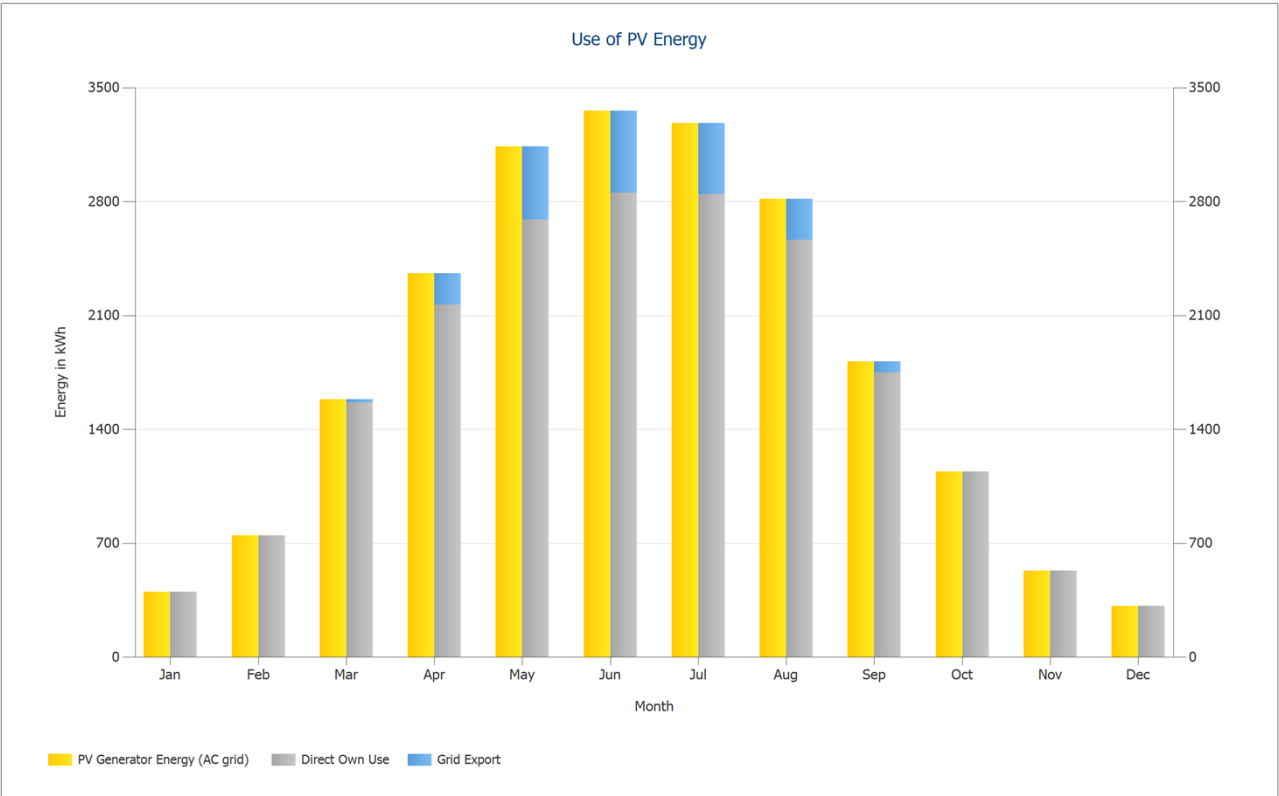


Figure: Use of PV Energy

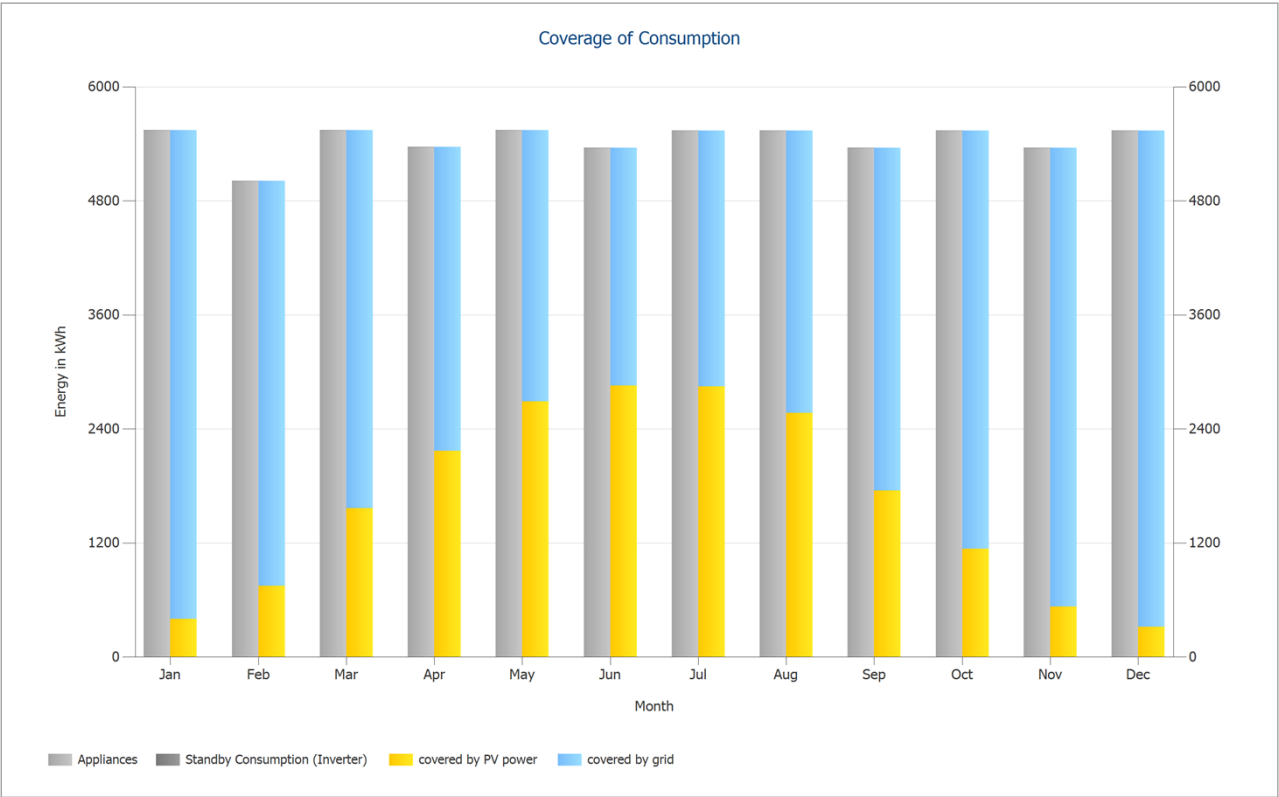


Figure: Coverage of Consumption

Financial Analysis

Overview

System Data

Grid Export in the first year (incl. module degradation)	1,889 kWh/Year
PV Generator Output	24.2 kWp
Start of Operation of the System	17/05/2024
Assessment Period	25 Years
Interest on Capital	1 %

Economic Parameters

Internal Rate of Return (IRR)	12.06 %
Accrued Cash Flow (Cash Balance)	65,748.16 £
Amortization Period	9.0 Years
Electricity Production Costs	0.0884 £/kWh

Payment Overview

Specific Investment Costs	1,200.00 £/kWp
Investment Costs	29,040.00 £
One-off Payments	0.00 £
Incoming Subsidies	0.00 £
Annual Costs	580.80 £/Year
Other Revenue or Savings	0.00 £/Year

Remuneration and Savings

Total Payment from Utility in First Year	1,401.03 £/Year
First year savings	2,472.16 £/Year

FIT 2019 (Jan - Mar) Higher Rate - Export tariff with 50% deeming - Building Attached

Validity	17/05/2024 - 16/05/2044
Specific generation remuneration	0.0524 £/kWh
Generation Tariff	551.98 £/Year
Inflation Rate for Generation Tariff	1.00 %/Year

FIT 2019 (Jan - Mar) Higher Rate - Generation tariff only - Building Attached

Validity	17/05/2024 - 16/05/2044
Specific generation remuneration	0.0403 £/kWh
Generation Tariff	849.04 £/Year
Inflation Rate for Generation Tariff	1.00 %/Year

SDC Example Energy Tariff (Example)

Energy Price	0.13 £/kWh
Base Price	4.4712 £/Month
Inflation Rate for Energy Price	5 %/Year

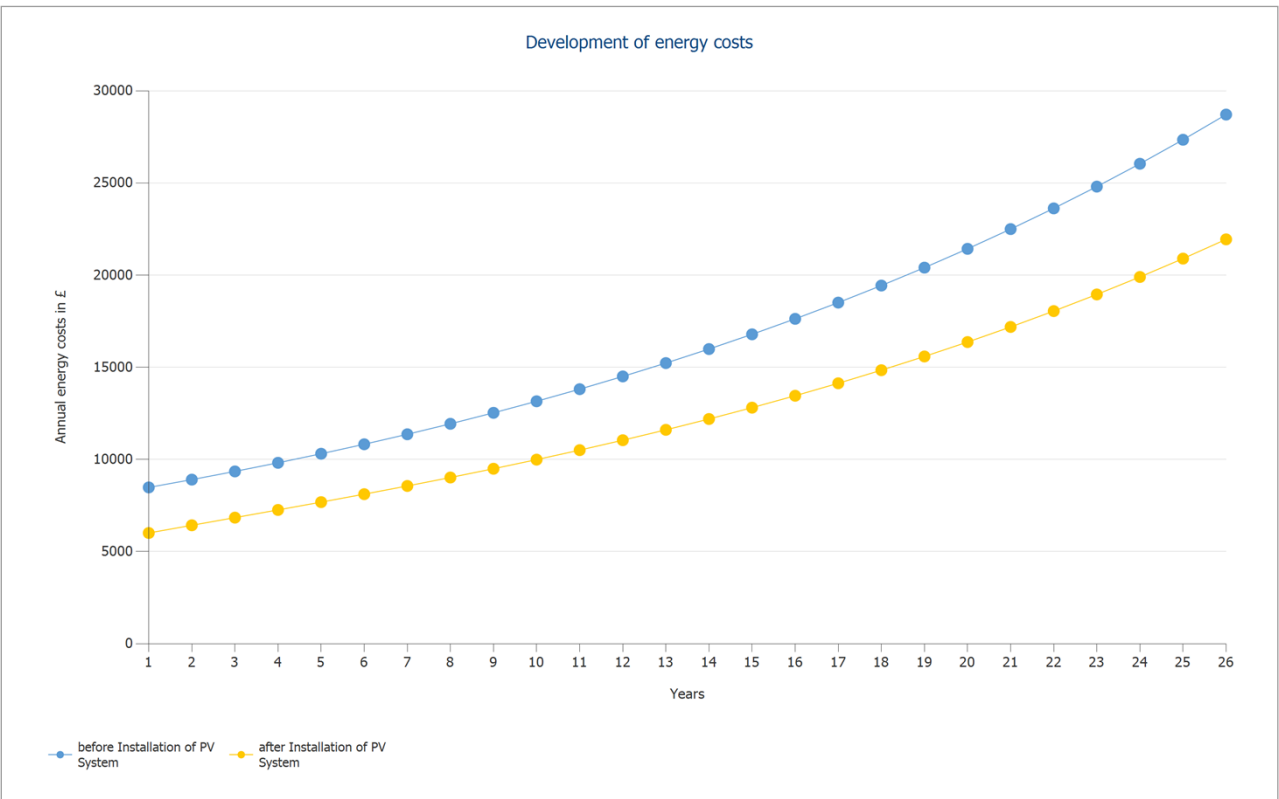


Figure: Development of energy costs

Cash flow

Cash flow

	Year 1	Year 2	Year 3	Year 4	Year 5
Investments	-£29,040.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£575.05	-£569.36	-£563.72	-£558.14	-£552.61
Feed-in / Export Tariff	£1,281.01	£1,322.87	£1,273.83	£1,236.42	£1,207.88
Electricity Savings	£2,421.14	£2,429.22	£2,433.90	£2,457.68	£2,497.41
Annual Cash Flow	-£25,912.90	£3,182.74	£3,144.00	£3,135.96	£3,152.68
Accrued Cash Flow (Cash Balance)	-£25,912.90	-£22,730.16	-£19,586.16	-£16,450.20	-£13,297.52

Cash flow

	Year 6	Year 7	Year 8	Year 9	Year 10
Investments	£0.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£547.14	-£541.72	-£536.36	-£531.05	-£525.79
Feed-in / Export Tariff	£1,186.12	£1,169.53	£1,156.88	£1,147.24	£1,139.89
Electricity Savings	£2,550.63	£2,615.40	£2,690.23	£2,773.97	£2,865.74
Annual Cash Flow	£3,189.61	£3,243.21	£3,310.75	£3,390.15	£3,479.84
Accrued Cash Flow (Cash Balance)	-£10,107.91	-£6,864.70	-£3,553.95	-£163.80	£3,316.04

Cash flow

	Year 11	Year 12	Year 13	Year 14	Year 15
Investments	£0.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£520.58	-£515.43	-£510.33	-£505.27	-£500.27
Feed-in / Export Tariff	£1,134.30	£1,130.04	£1,126.81	£1,124.35	£1,122.49
Electricity Savings	£2,964.88	£3,070.92	£3,183.51	£3,302.42	£3,427.53
Annual Cash Flow	£3,578.59	£3,685.53	£3,799.99	£3,921.50	£4,049.75
Accrued Cash Flow (Cash Balance)	£6,894.63	£10,580.16	£14,380.15	£18,301.65	£22,351.40

Cash flow

	Year 16	Year 17	Year 18	Year 19	Year 20
Investments	£0.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£495.32	-£490.41	-£485.56	-£480.75	-£475.99
Feed-in / Export Tariff	£1,121.08	£1,120.02	£1,119.22	£1,118.62	£1,118.18
Electricity Savings	£3,558.77	£3,696.13	£3,839.68	£3,989.49	£4,145.71
Annual Cash Flow	£4,184.53	£4,325.74	£4,473.34	£4,627.36	£4,787.89
Accrued Cash Flow (Cash Balance)	£26,535.93	£30,861.66	£35,335.00	£39,962.36	£44,750.25

Cash flow

	Year 21	Year 22	Year 23	Year 24	Year 25
Investments	£0.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£471.28	-£466.61	-£461.99	-£457.42	-£452.89
Feed-in / Export Tariff	£0.00	£0.00	£0.00	£0.00	£0.00
Electricity Savings	£4,308.48	£4,477.99	£4,654.44	£4,838.07	£5,029.12
Annual Cash Flow	£3,837.20	£4,011.38	£4,192.45	£4,380.65	£4,576.23
Accrued Cash Flow (Cash Balance)	£48,587.45	£52,598.83	£56,791.28	£61,171.93	£65,748.16

Degradation and inflation rates are applied on a monthly basis over the entire

observation period. This is done in the first year.

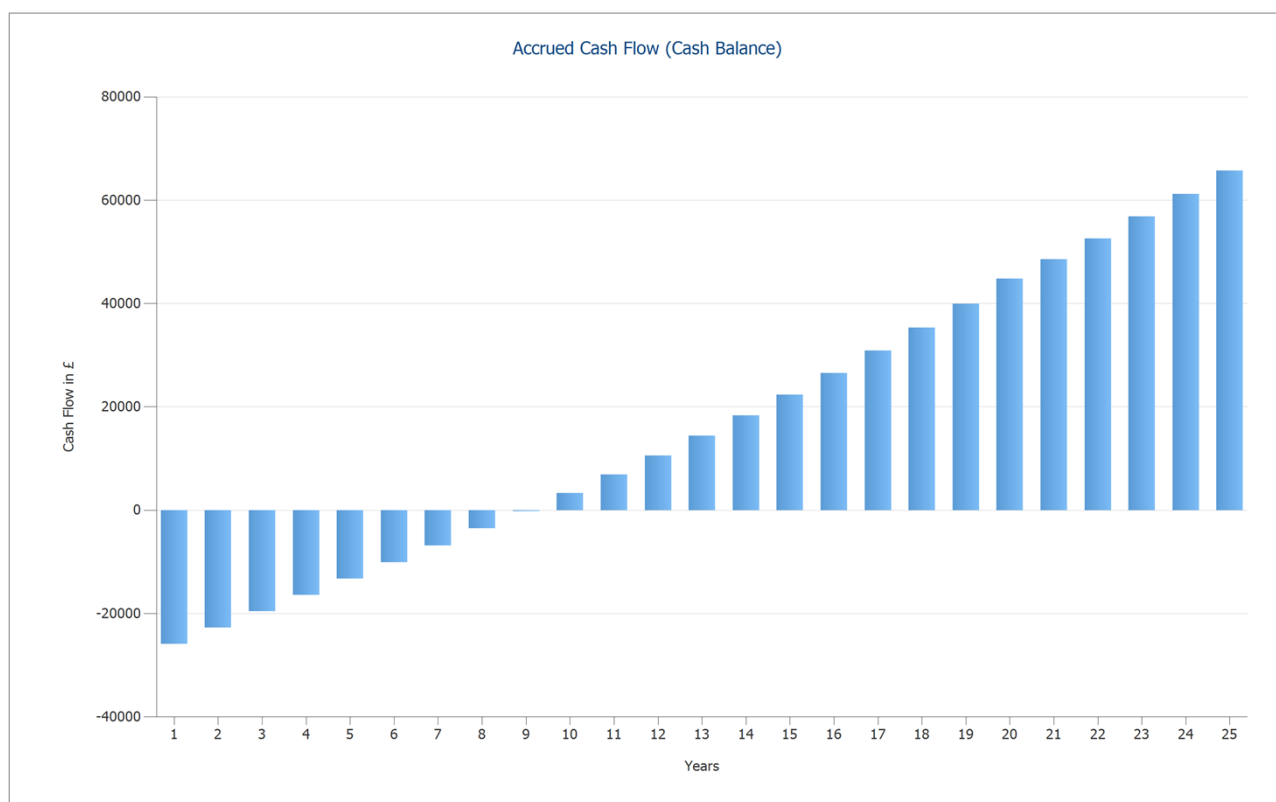


Figure: Accrued Cash Flow (Cash Balance)

Plans and parts list

Circuit Diagram

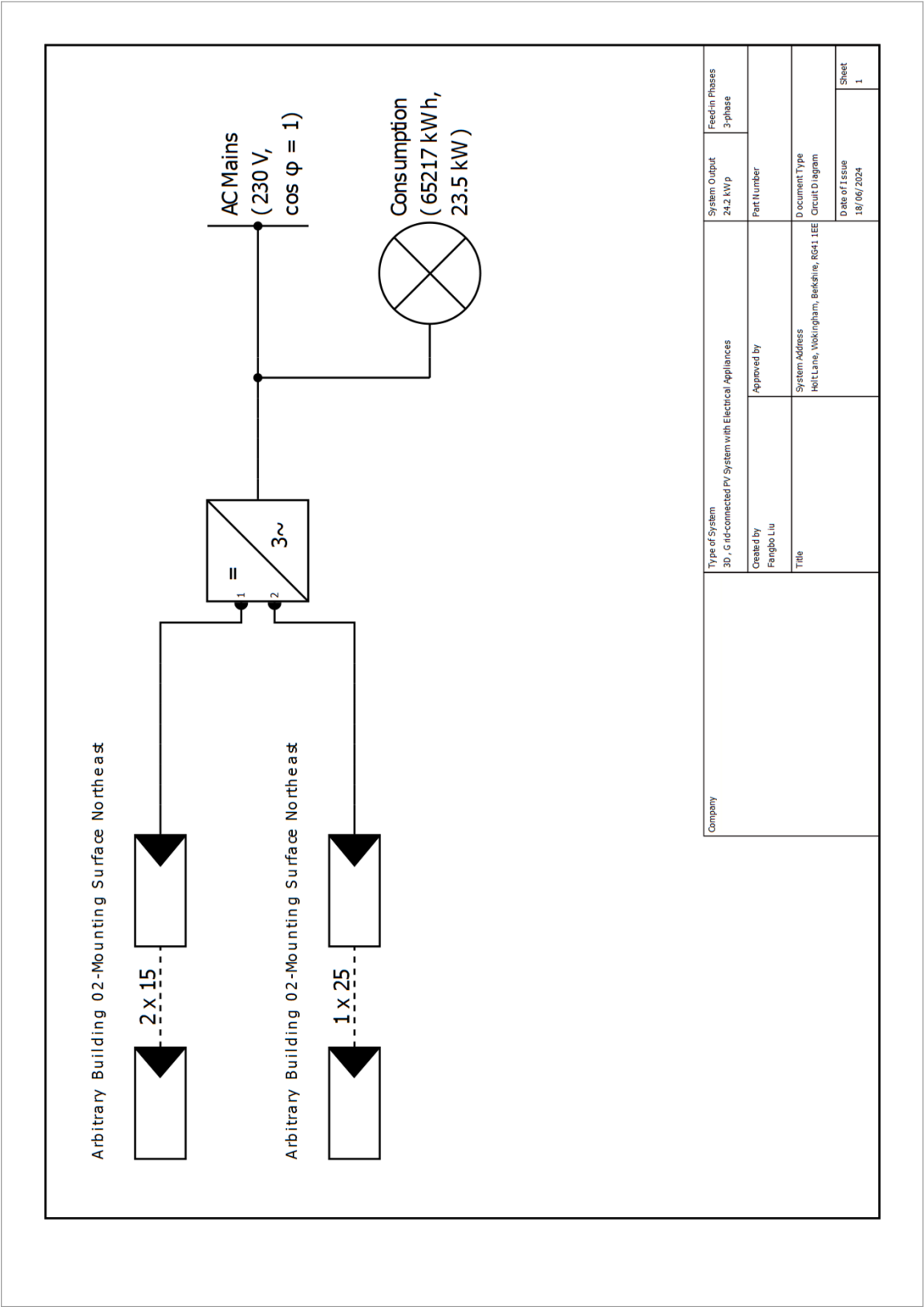


Figure: Circuit Diagram

Overview plan

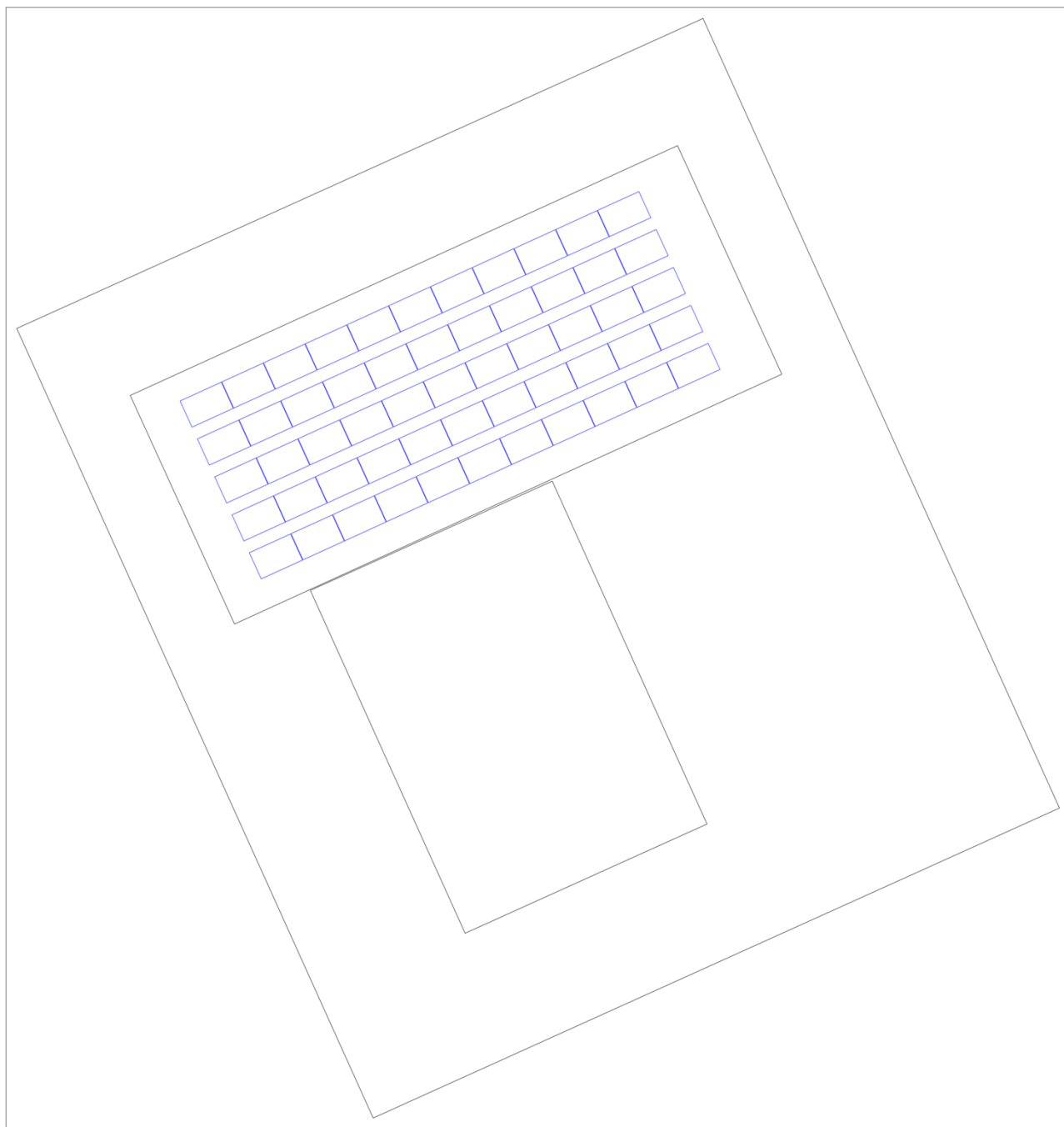


Figure: Overview plan

Dimensioning Plan

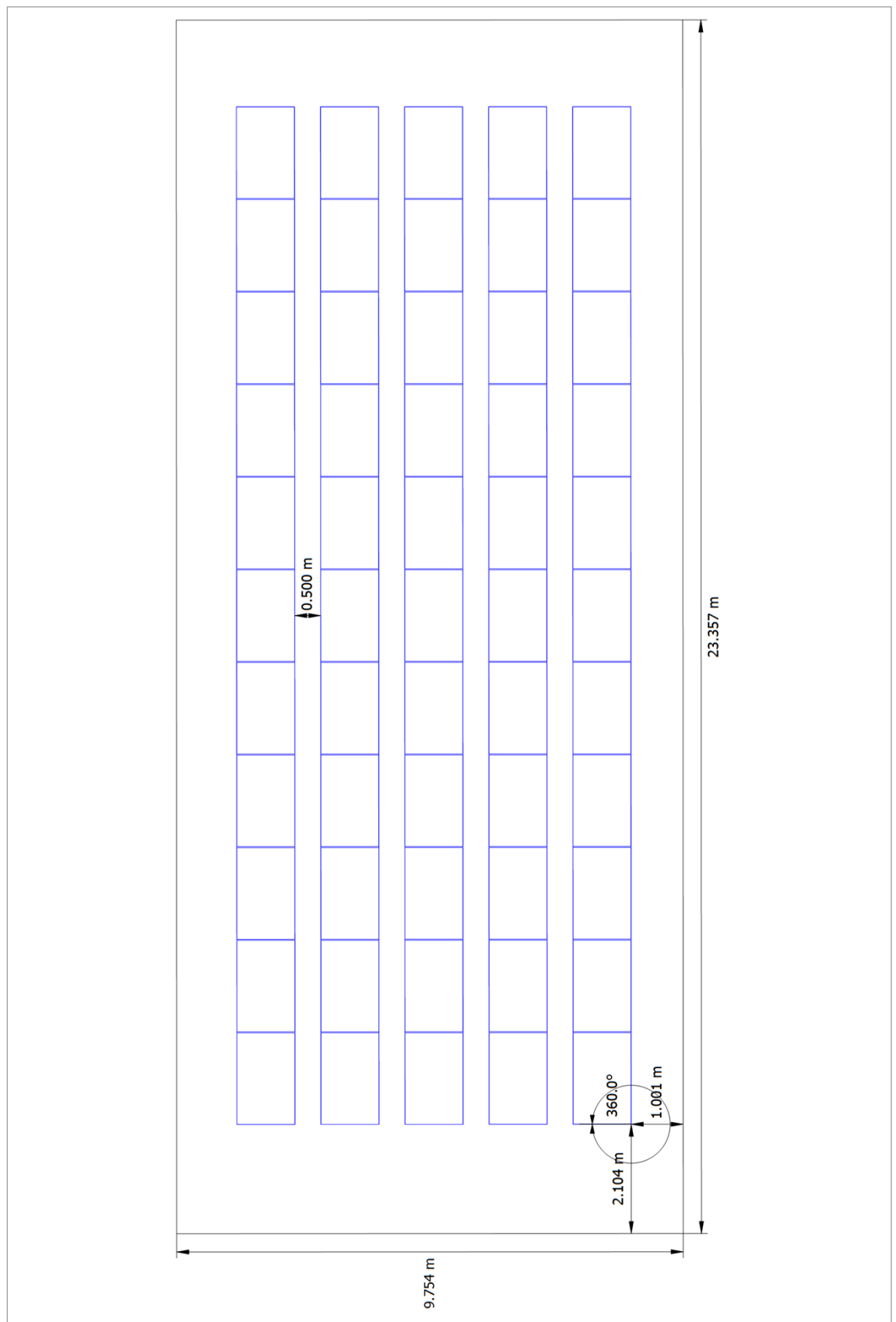


Figure: Arbitrary Building 02 - Mounting Surface Northeast

String Plan

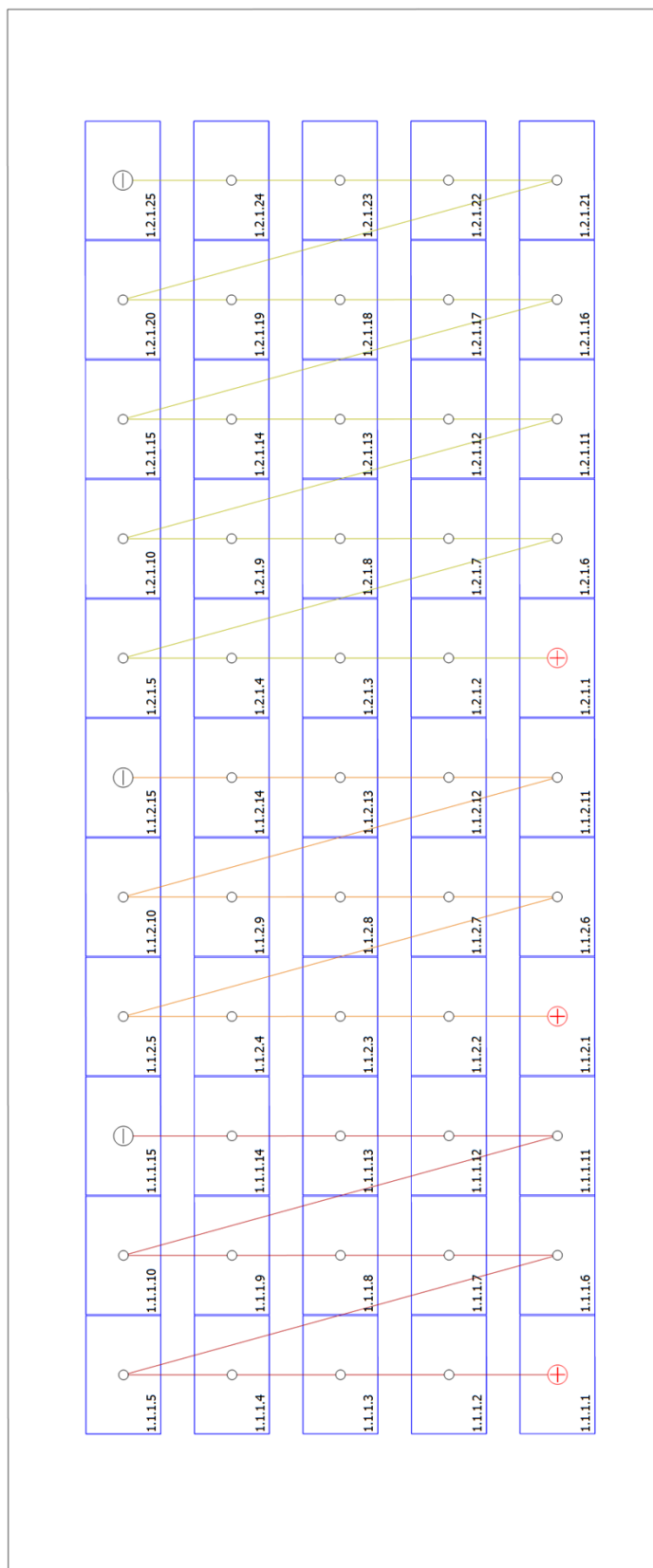


Figure: Arbitrary Building 02 - Mounting Surface Northeast

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		JA Solar Holdings Co., Ltd.	JAM54D40-440/LB	55	Piece
2	Inverter		Ginlong (Solis)	S5-GR3P20K	1	Piece

Screenshots, 3D Design Environment

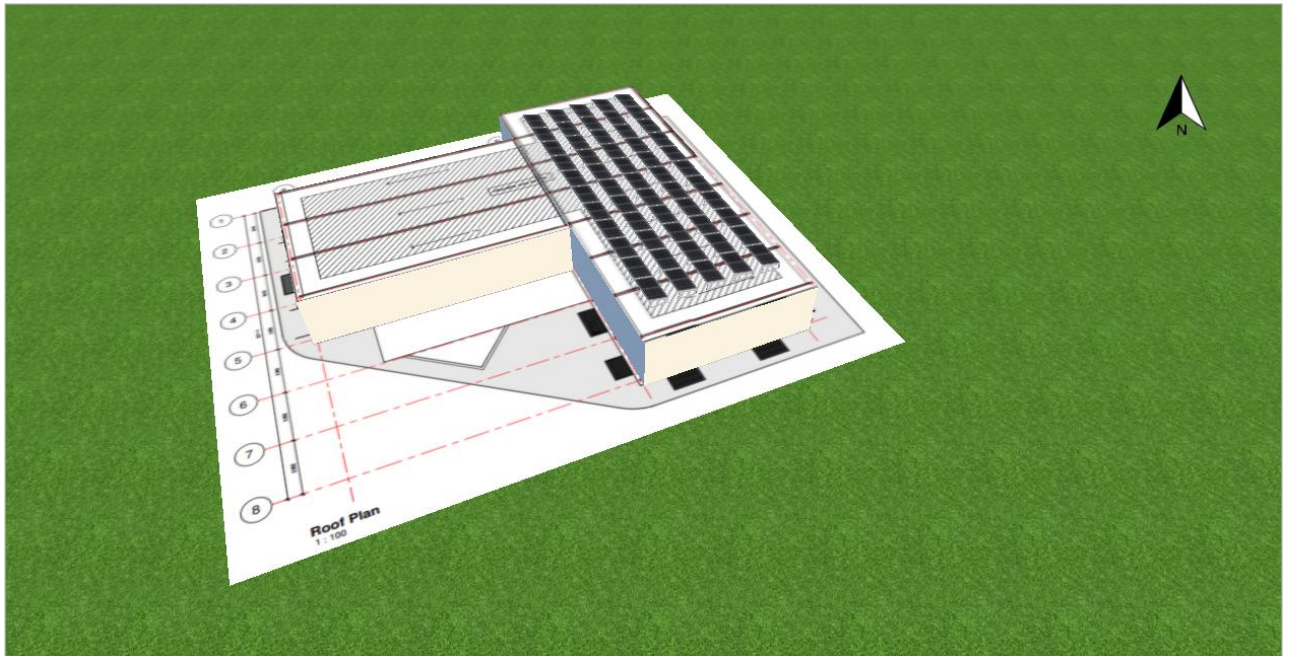


Figure: Screenshot01