Inspired Energy Solutions
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PR4 2DZ

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Project Name: DNATA Manchester

07/01/2025

Your PV system from Inspired Energy Solutions

Address of Installation

Pinfold Ln, Manchester M90 5XR



Project Description:
Using 1 year of half hourly data starting 01/10/2022.

Project Designer: Alex Ana

Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances

Climate Data	DNATA Manchester, GBR (1996 - 2015)	
Values source	Meteonorm 8.1(i)	
PV Generator Output	330.48	kWp
PV Generator Surface	1,462.3	m²
Number of PV Modules	648	
Number of Inverters	3	

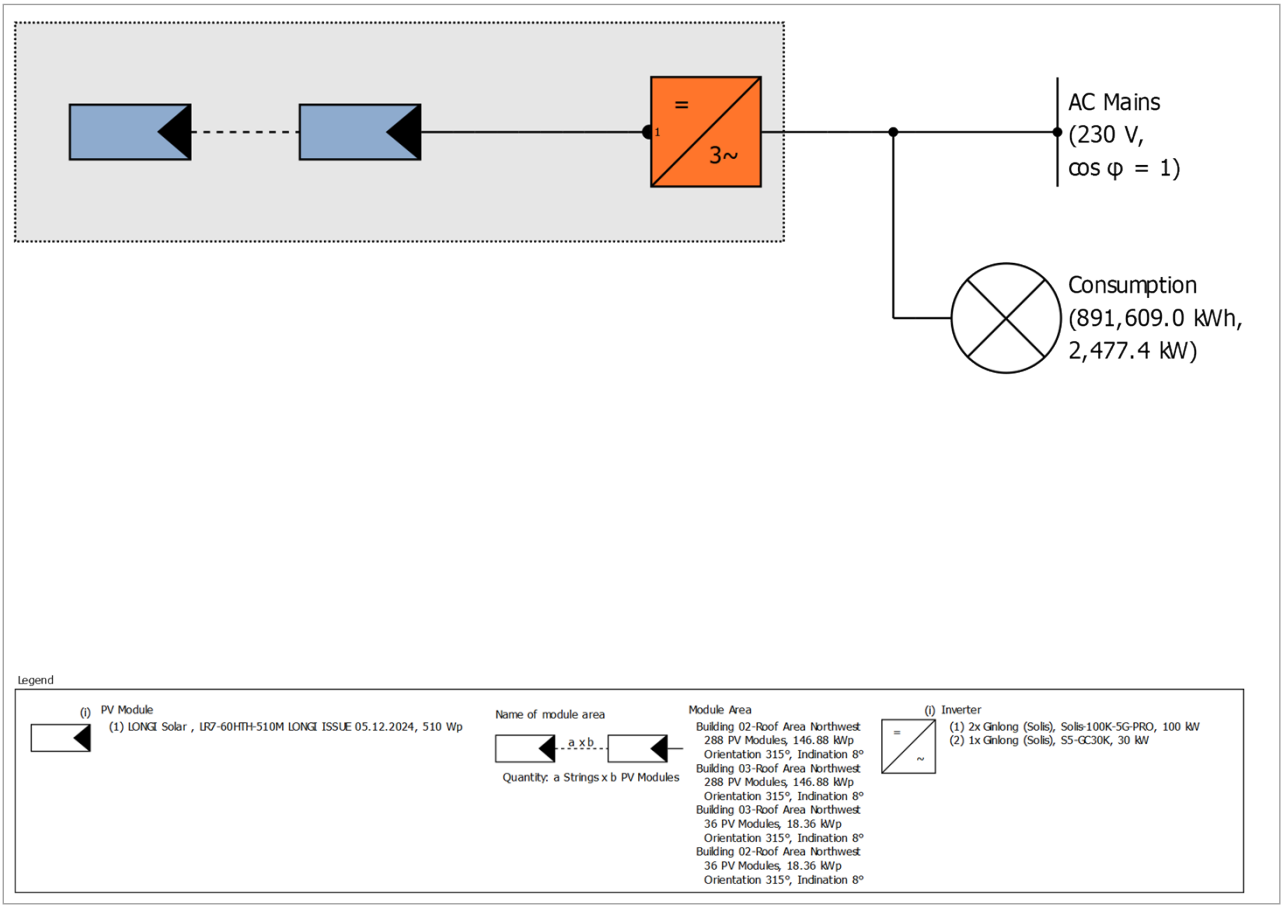


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	330.48 kWp
Spec. Annual Yield	851.82 kWh/kWp
Performance Ratio (PR)	91.98 %
Yield Reduction due to Shading	0.3 %
PV Generator Energy (AC grid)	281,538 kWh/Year
Own Consumption	204,749 kWh/Year
Clipping at Feed-in Point	0 kWh/Year
Grid Export	76,789 kWh/Year
Own Power Consumption	72.7 %
CO_2 Emissions avoided	58,272 kg / year
Level of Self-sufficiency	23.0 %

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	DNATA Manchester, GBR (1996 - 2015)
Values source	Meteonorm 8.1(i)
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Consumption

Total Consumption	891609 kWh
HH data MPAN NA starting 20221001	891609 kWh
Load Peak	2477.4 kW

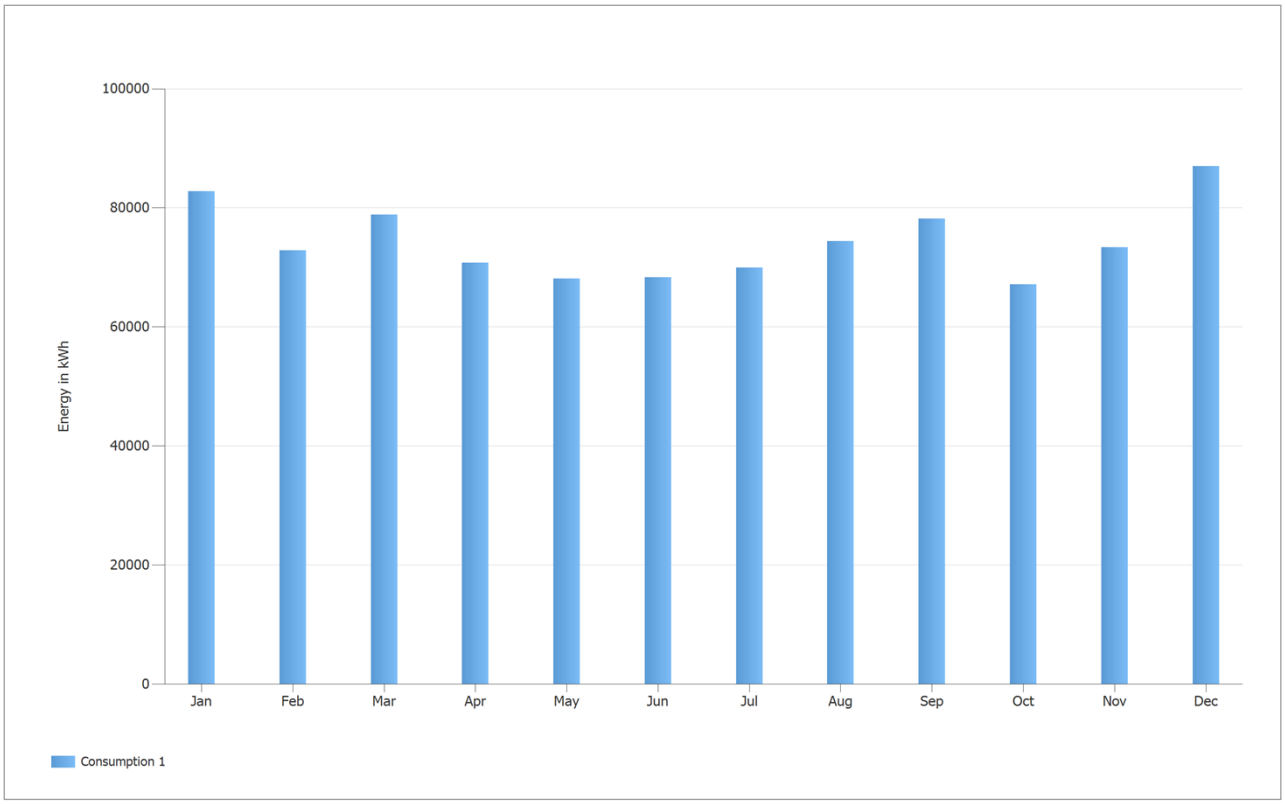


Figure: Consumption

Module Areas

1. Module Area - Building 02-Roof Area Northwest

PV Generator, 1. Module Area - Building 02-Roof Area Northwest

Name	Building 02-Roof Area Northwest
PV Modules	288 x LR7-60HTH-510M LONGI ISSUE 05.12.2024 (v2)
Manufacturer	LONGI Solar
Inclination	8 °
Orientation	Northwest 315 °
Installation Type	Roof parallel
PV Generator Surface	649.9 m²

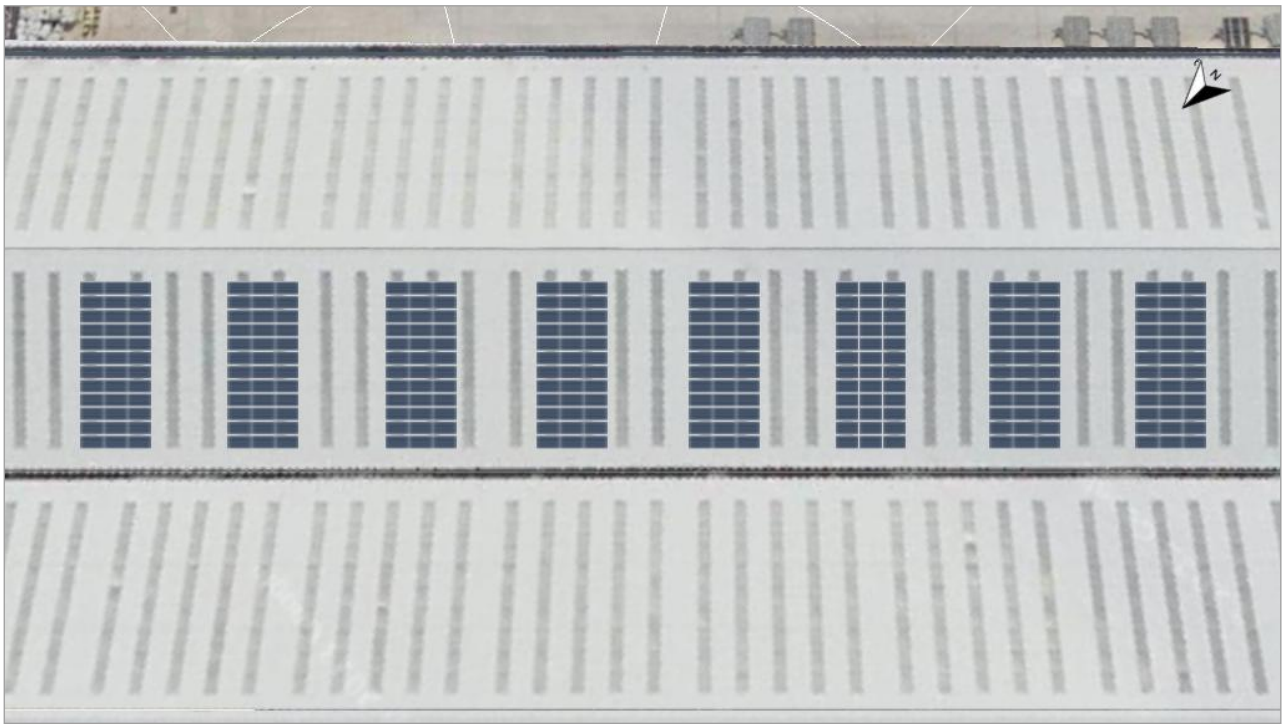


Figure: 1. Module Area - Building 02-Roof Area Northwest

2. Module Area - Building 03-Roof Area Northwest

PV Generator, 2. Module Area - Building 03-Roof Area Northwest

Name	Building 03-Roof Area Northwest
PV Modules	288 x LR7-60HTH-510M LONGI ISSUE 05.12.2024 (v2)
Manufacturer	LONGI Solar
Inclination	8 °
Orientation	Northwest 315 °
Installation Type	Roof parallel
PV Generator Surface	649.9 m²



Figure: 2. Module Area - Building 03-Roof Area Northwest

3. Module Area - Building 03-Roof Area Northwest

PV Generator, 3. Module Area - Building 03-Roof Area Northwest

Name	Building 03-Roof Area Northwest
PV Modules	36 x LR7-60HTH-510M LONGI ISSUE 05.12.2024 (v2)
Manufacturer	LONGI Solar
Inclination	8 °
Orientation	Northwest 315 °
Installation Type	Roof parallel
PV Generator Surface	81.2 m²

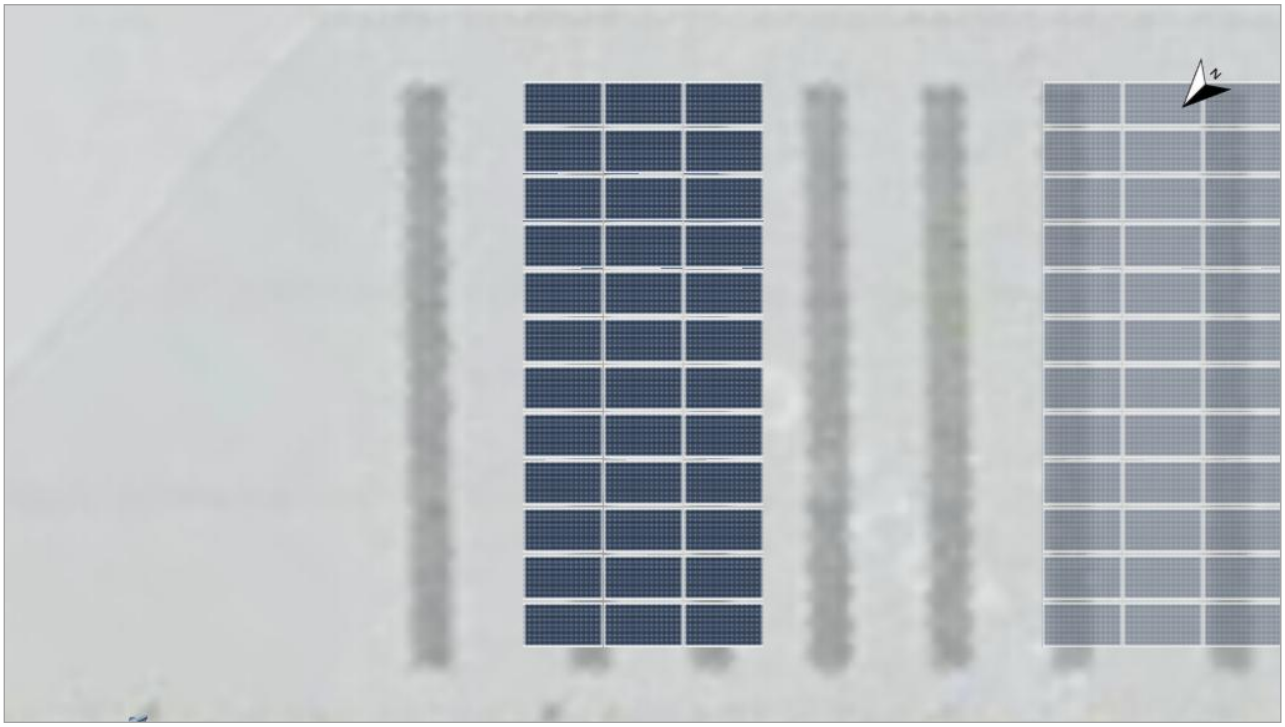


Figure: 3. Module Area - Building 03-Roof Area Northwest

4. Module Area - Building 02-Roof Area Northwest

PV Generator, 4. Module Area - Building 02-Roof Area Northwest

Name	Building 02-Roof Area Northwest
PV Modules	36 x LR7-60HTH-510M LONGI ISSUE 05.12.2024 (v2)
Manufacturer	LONGI Solar
Inclination	8 °
Orientation	Northwest 315 °
Installation Type	Roof parallel
PV Generator Surface	81.2 m²

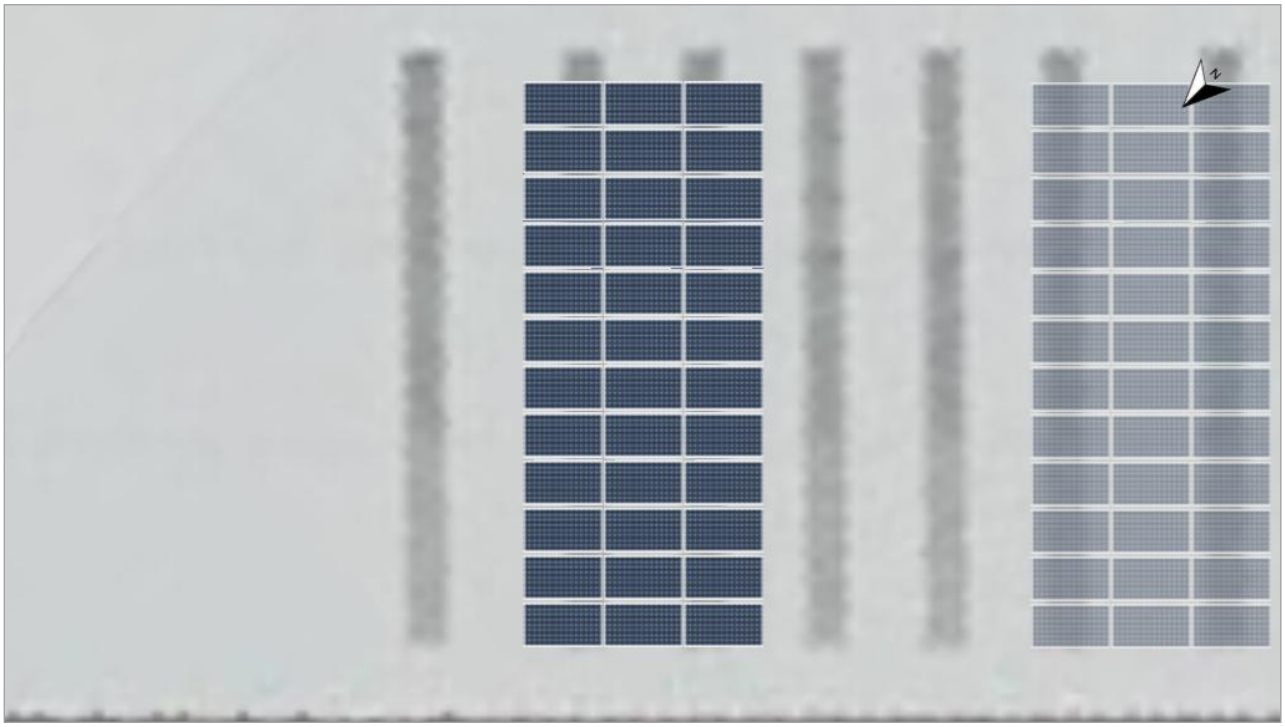


Figure: 4. Module Area - Building 02-Roof Area Northwest

Horizon Line, 3D Design

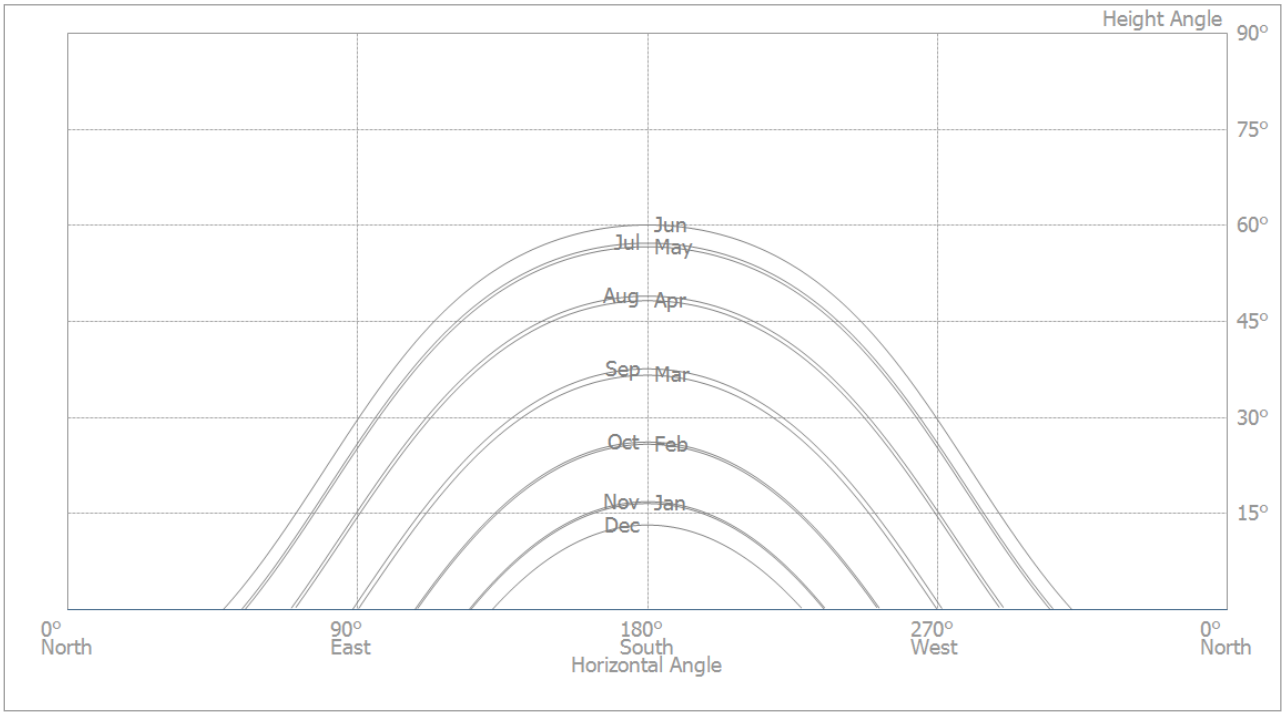


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Area	Building 02-Roof Area Northwest
Inverter 1	
Model	Solis-100K-5G-PRO (v1)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	146.9 %
Configuration	MPP 1: 2 x 18
	MPP 2: 2 x 18
	MPP 3: 2 x 18
	MPP 4: 2 x 18
	MPP 5: 2 x 18
	MPP 6: 2 x 18
	MPP 7: 2 x 18
	MPP 8: 2 x 18

Configuration 2

Module Area	Building 03-Roof Area Northwest
Inverter 1	
Model	Solis-100K-5G-PRO (v1)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	146.9 %
Configuration	MPP 1: 2 x 18
	MPP 2: 2 x 18
	MPP 3: 2 x 18
	MPP 4: 2 x 18
	MPP 5: 2 x 18
	MPP 6: 2 x 18
	MPP 7: 2 x 18
	MPP 8: 2 x 18

Configuration 3

Module Areas	Building 03-Roof Area Northwest + Building 02-Roof Area Northwest
Inverter 1	
Model	S5-GC30K (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	122.4 %
Configuration	MPP 1: 2 x 18
	MPP 2: 2 x 18
	MPP 3: not allocated

AC Mains

AC Mains

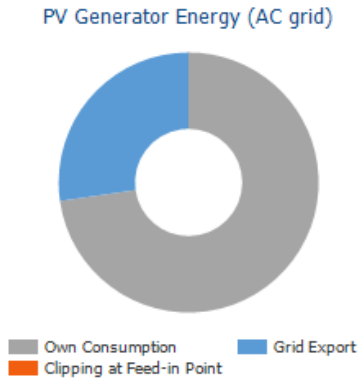
Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

Results Total System

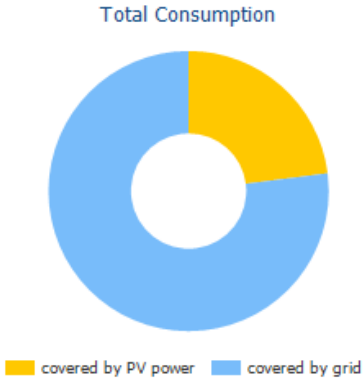
PV System

PV Generator Output	330.48	kWp
Spec. Annual Yield	851.82	kWh/kWp
Performance Ratio (PR)	91.98	%
Yield Reduction due to Shading	0.3	%
PV Generator Energy (AC grid)	281,538	kWh/Year
Own Consumption	204,749	kWh/Year
Clipping at Feed-in Point	0	kWh/Year
Grid Export	76,789	kWh/Year
Own Power Consumption	72.7	%
CO_2 Emissions avoided	58,272	kg / year



Appliances

Appliances	891,609	kWh/Year
Standby Consumption (Inverter)	30	kWh/Year
Total Consumption	891,639	kWh/Year
covered by PV power	204,749	kWh/Year
covered by grid	686,890	kWh/Year
Solar Fraction	23.0	%



Level of Self-sufficiency

Total Consumption	891,639	kWh/Year
covered by grid	686,890	kWh/Year
Level of Self-sufficiency	23.0	%

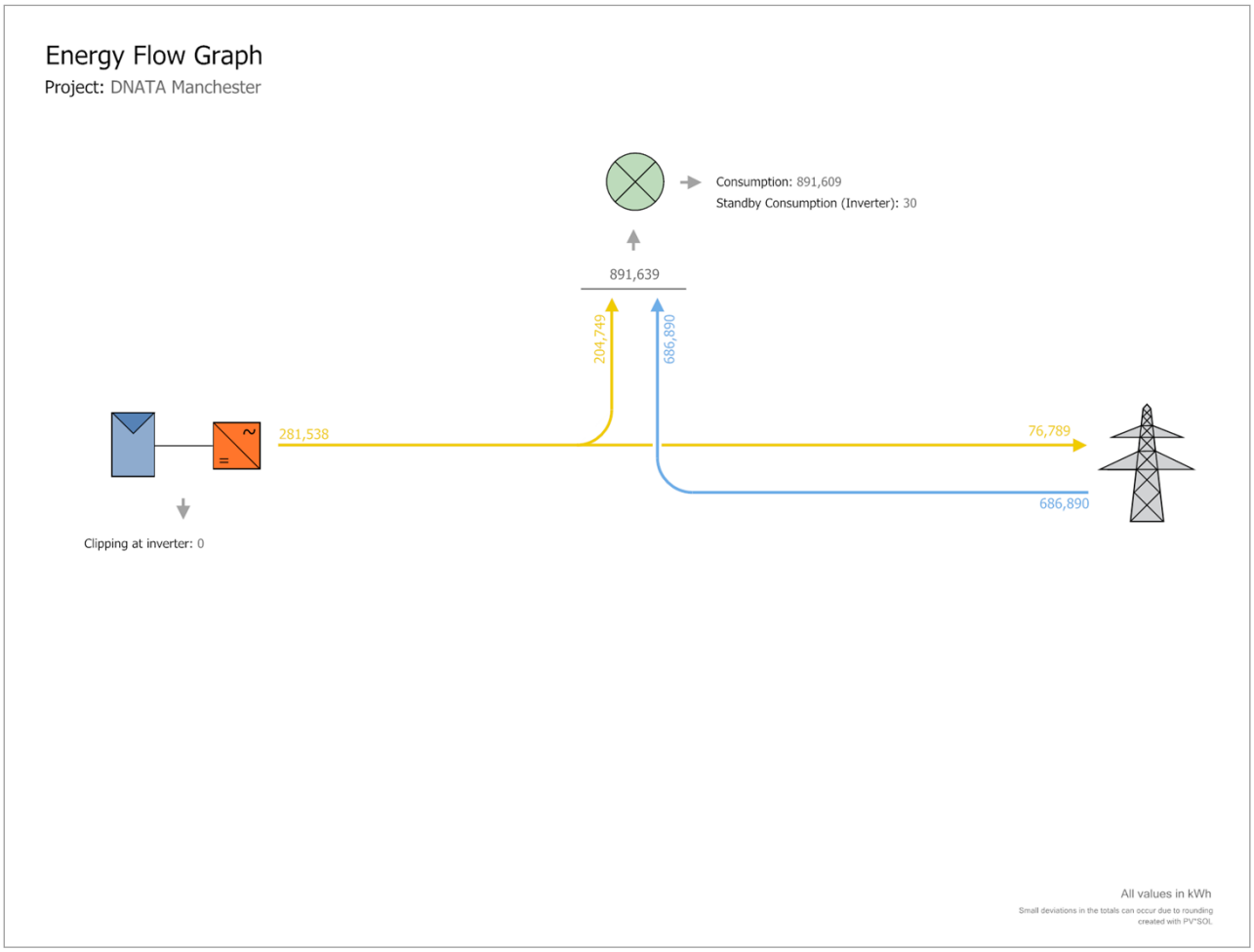


Figure: Energy flow

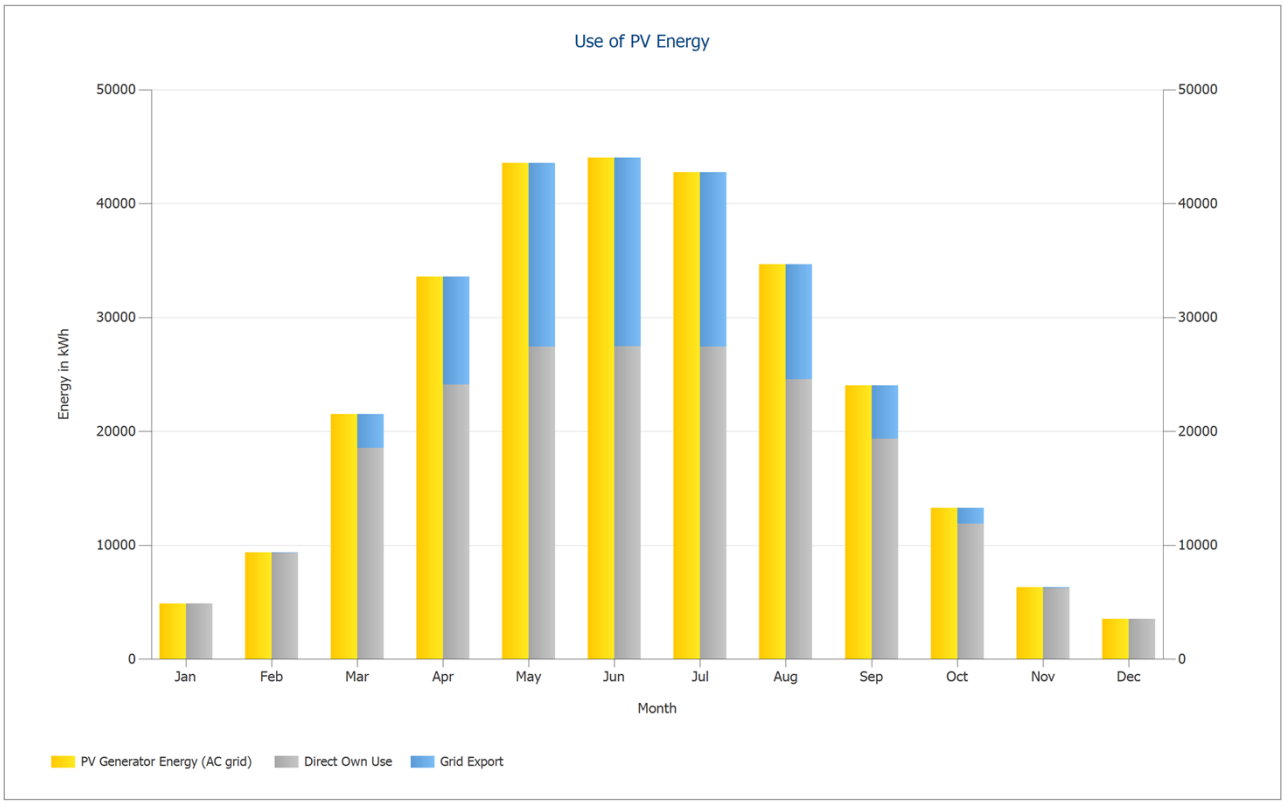


Figure: Use of PV Energy

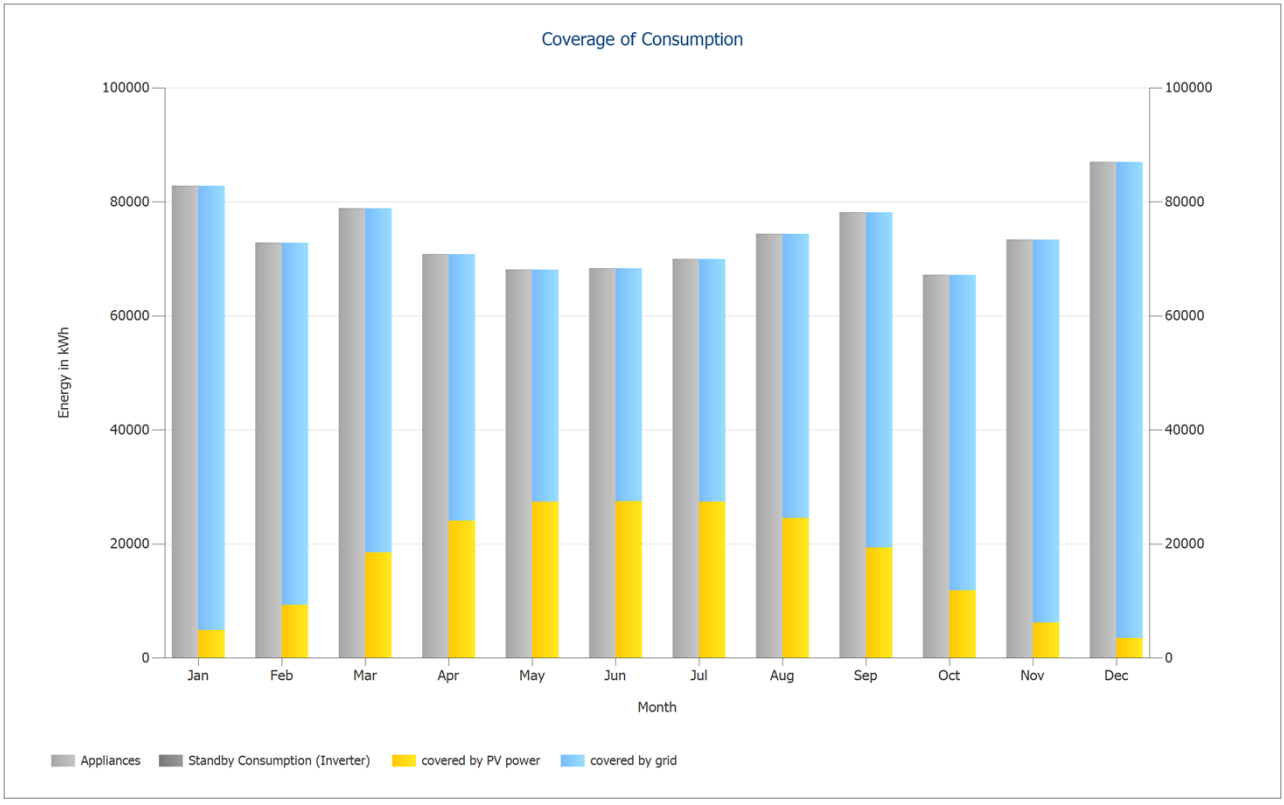


Figure: Coverage of Consumption

Plans and parts list

Circuit Diagram

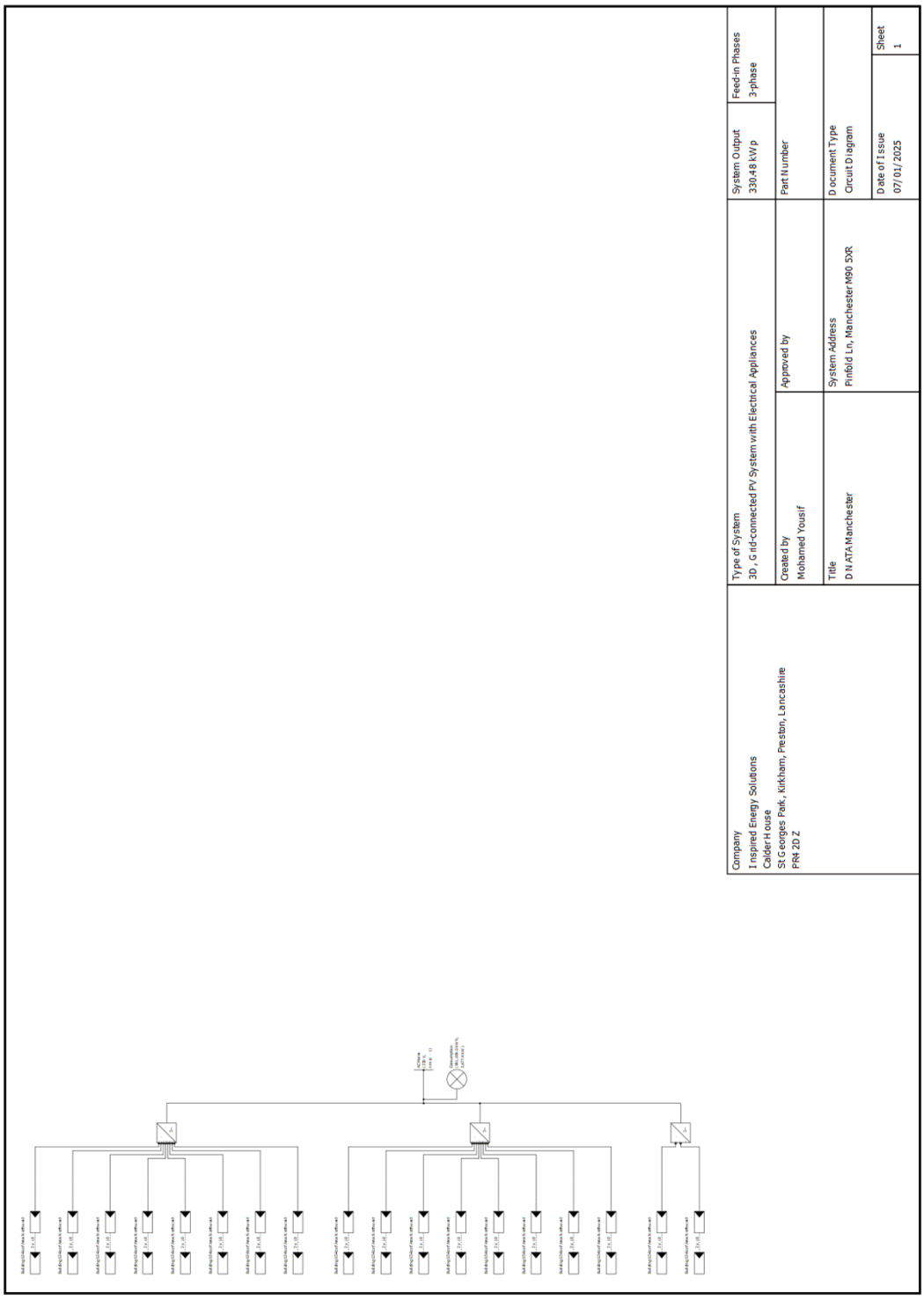


Figure: Circuit Diagram

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		LONGI Solar	LR7-60HTH-510M LONGI ISSUE 05.12.2024	648	Piece
2	Inverter		Ginlong (Solis)	Solis-100K-5G-PRO	2	Piece
3	Inverter		Ginlong (Solis)	S5-GC30K	1	Piece

Screenshots, 3D Design

Environment



Figure: Screenshot06



Figure: Screenshot07



Figure: Screenshot05