Solar Company
The Street
This town
UK

Mr and Mrs
Camberwick Green
Chigley
Trumpton

Contact person:
John Doe

Project Name: Exmaple 2D Report

03/06/2023

Your PV system from Solar Company

Address of Installation

Camberwick Green
Chigley
Trumpton

Project Overview

PV System

Grid-connected PV System with Electrical Appliances

Climate Data	East Pennines (SAP 2012), GBR (-)
Values source	SAP 2012
PV Generator Output	4.4 kWp
PV Generator Surface	36.9 m²
Number of PV Modules	22
Number of Inverters	1

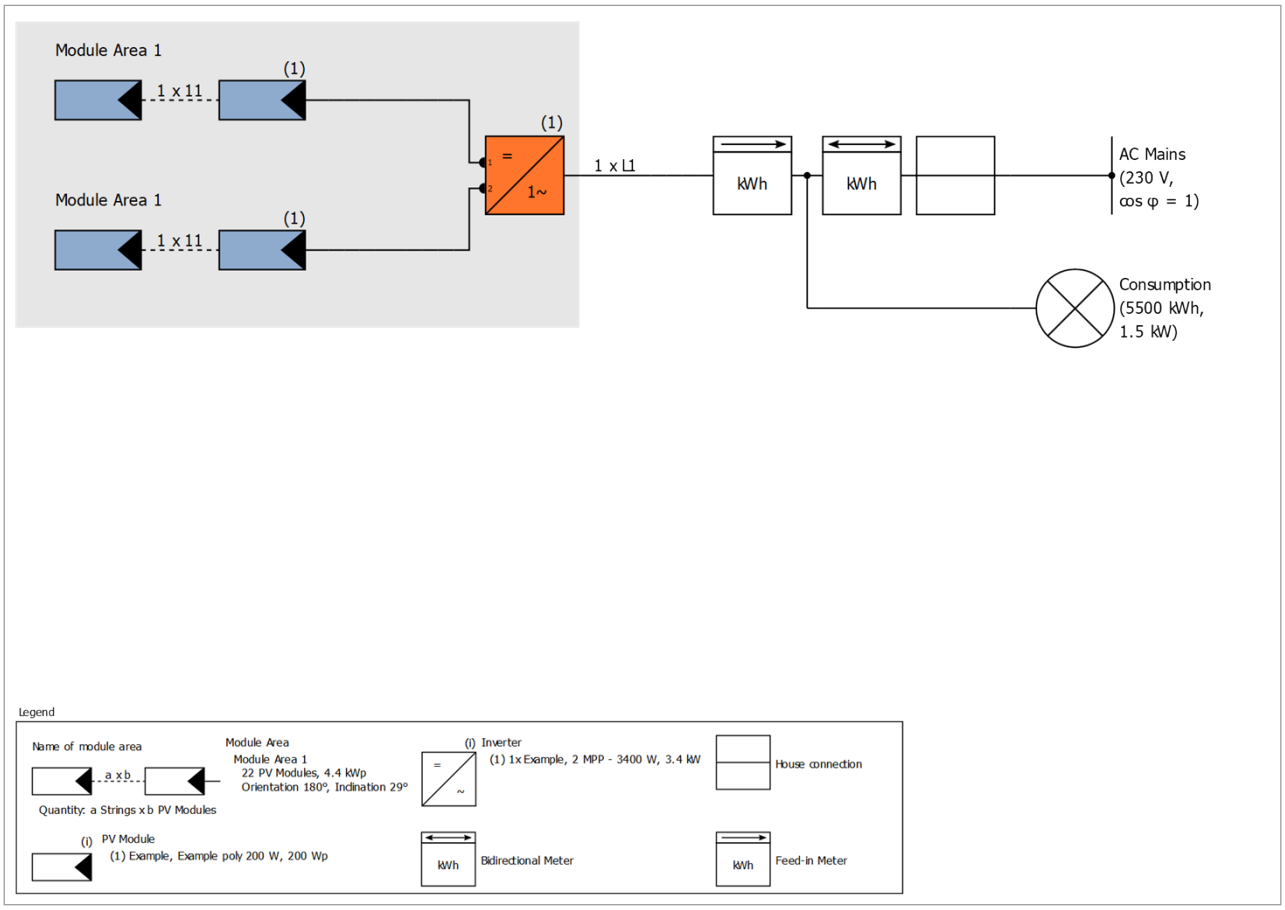


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	4.40	kWp
Spec. Annual Yield	905.30	kWh/kWp
Performance Ratio (PR)	83.86	%
PV Generator Energy (AC grid)	3,984	kWh/Year
Own Consumption	1,749	kWh/Year
Down-regulation at Feed-in Point	0	kWh/Year
Grid Export	2,234	kWh/Year
Own Power Consumption	43.9	%
CO_2 Emissions avoided	2,071	kg / year
Level of Self-sufficiency	31.8	%

Financial Analysis

Your Gain

Total investment costs	5,280.00	£
Internal Rate of Return (IRR)	6.48	%
Amortization Period	13.8	Years
Electricity Production Costs	0.0867	£/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	Grid-connected PV System with Electrical Appliances

Climate Data

Location	East Pennines (SAP 2012), GBR (-)
Values source	SAP 2012
Resolution of the data	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Consumption

Total Consumption	5500 kWh
Load Profile 1	5500 kWh
Load Peak	1.5 kW

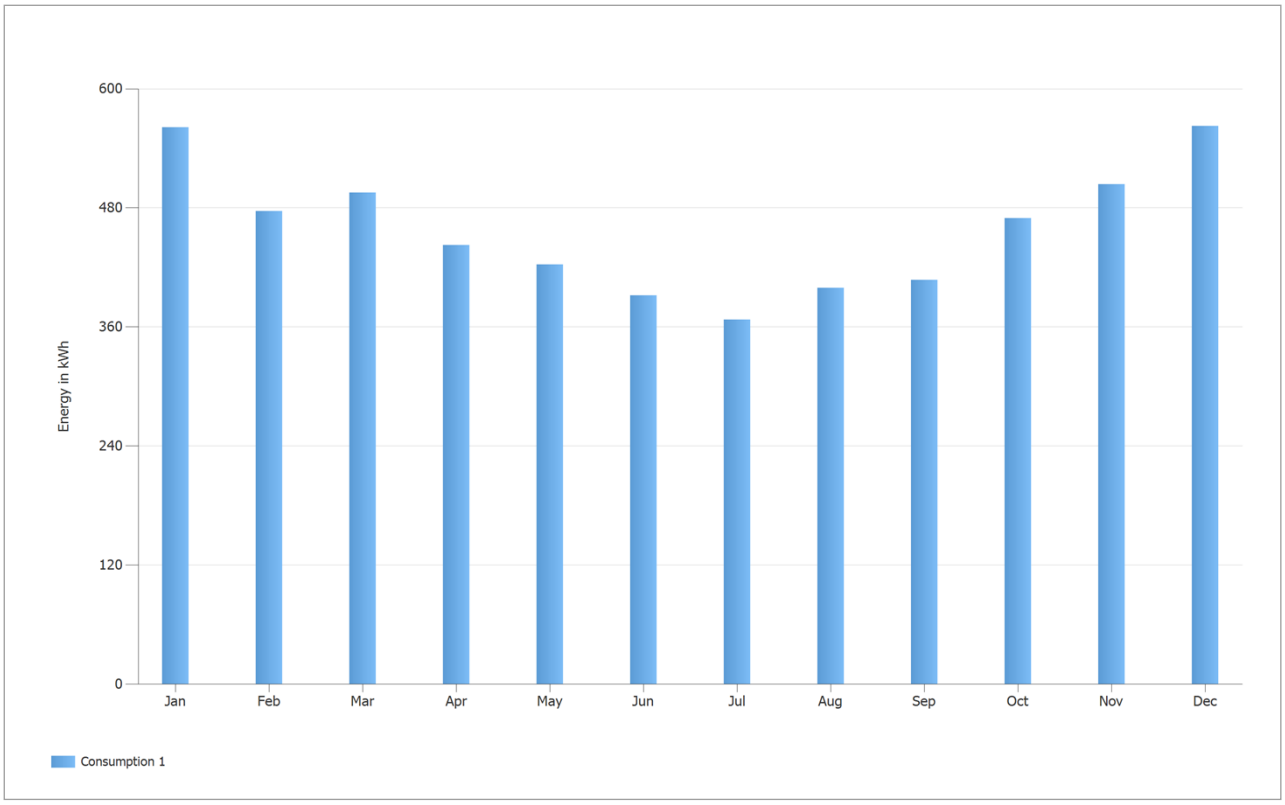


Figure: Consumption

Module Areas

1. Module Area - Module Area 1

PV Generator, 1. Module Area - Module Area 1

Name	Module Area 1
PV Modules	22 x Example poly 200 W (v1)
Manufacturer	Example
Inclination	29 °
Orientation	South 180 °
Installation Type	Roof parallel
PV Generator Surface	36.9 m²

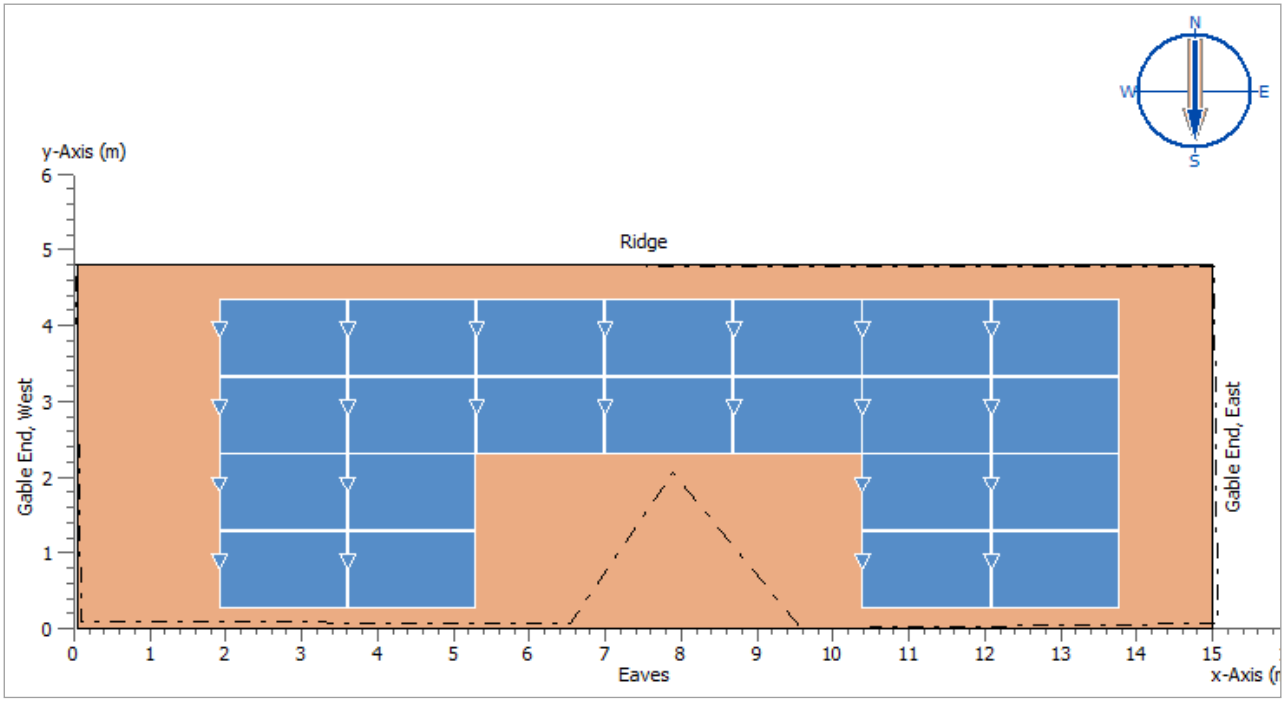


Figure: Roof View, 1. Module Area - Module Area 1

Figure: Photo Preview, 1. Module Area - Module Area 1

Inverter configuration

Configuration 1	
Module Area	Module Area 1
Inverter 1	
Model	2 MPP - 3400 W (v4)
Manufacturer	Example
Quantity	1
Sizing Factor	129.4 %
Configuration	MPP 1: 1 x 11
	MPP 2: 1 x 11

AC Mains

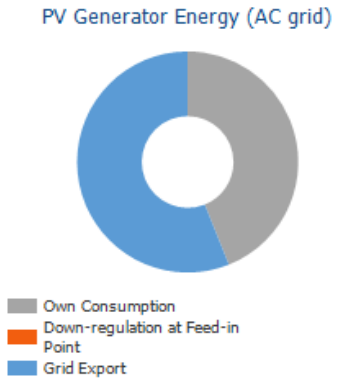
AC Mains	
Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

Results Total System

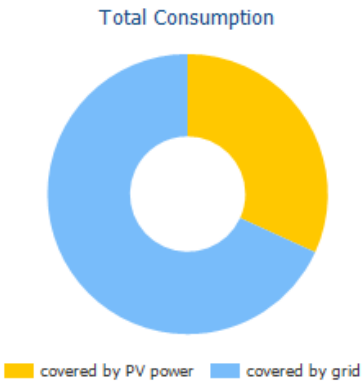
PV System

PV Generator Output	4.40	kWp
Spec. Annual Yield	905.30	kWh/kWp
Performance Ratio (PR)	83.86	%
PV Generator Energy (AC grid)	3,984	kWh/Year
Own Consumption	1,749	kWh/Year
Down-regulation at Feed-in Point	0	kWh/Year
Grid Export	2,234	kWh/Year
Own Power Consumption	43.9	%
CO_2 Emissions avoided	2,071	kg / year



Appliances

Appliances	5,500	kWh/Year
Standby Consumption (Inverter)	0	kWh/Year
Total Consumption	5,500	kWh/Year
covered by PV power	1,749	kWh/Year
covered by grid	3,751	kWh/Year
Solar Fraction	31.8	%



Level of Self-sufficiency

Total Consumption	5,500	kWh/Year
covered by grid	3,751	kWh/Year
Level of Self-sufficiency	31.8	%

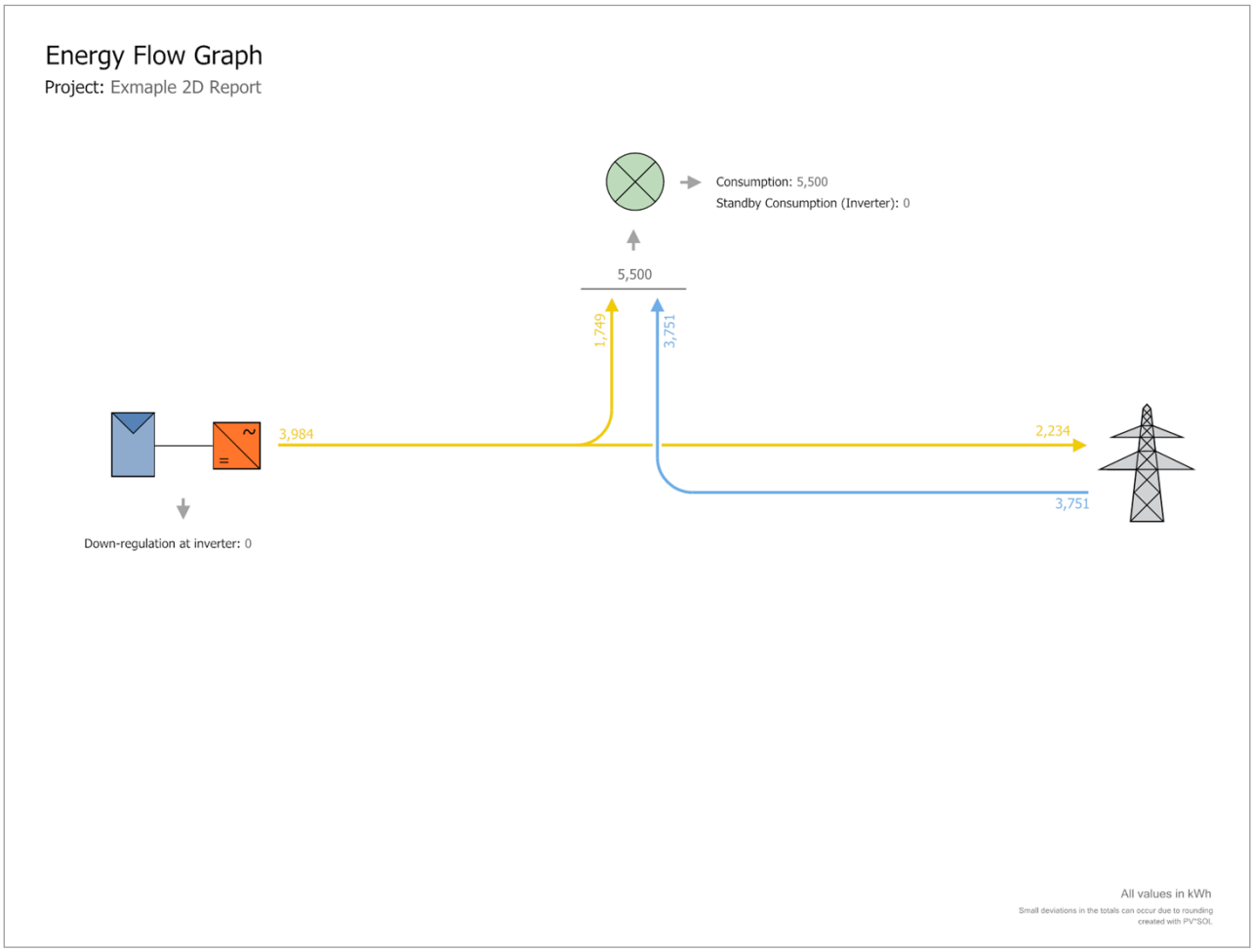


Figure: Energy flow

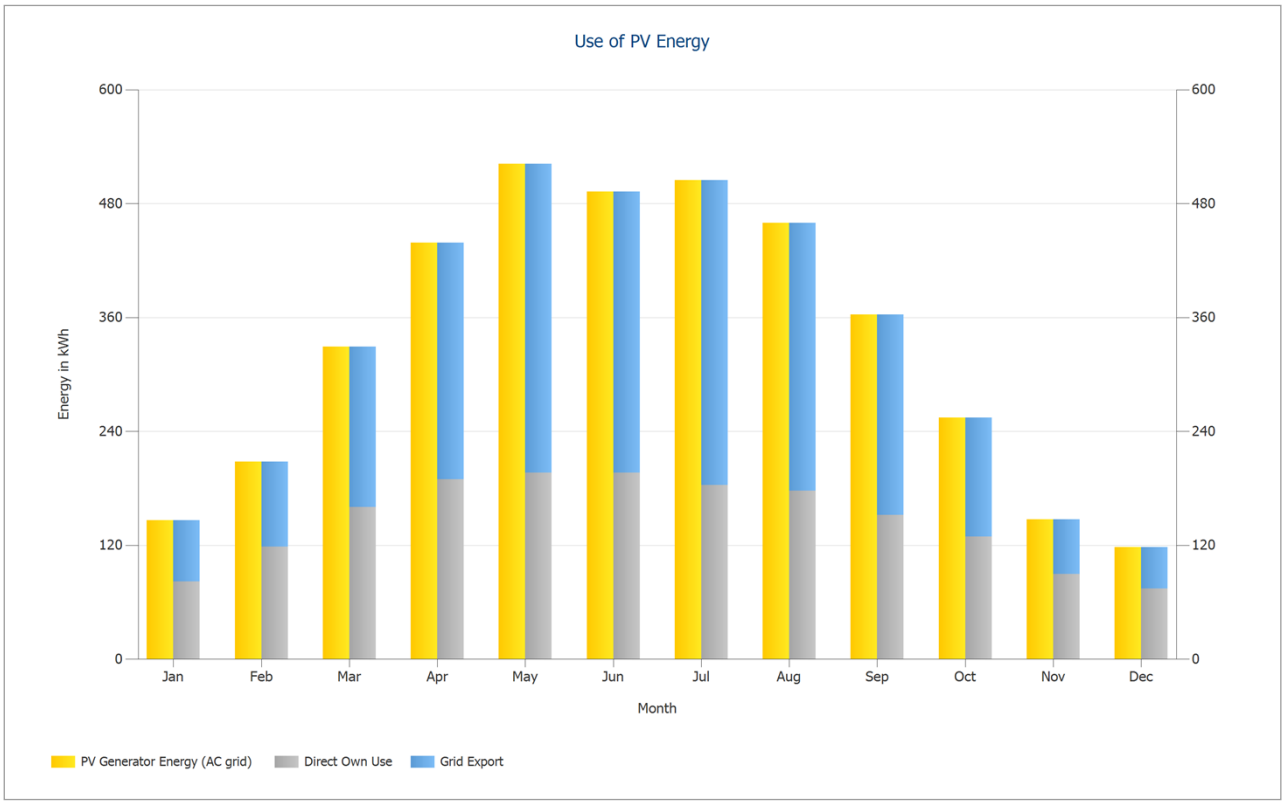


Figure: Use of PV Energy

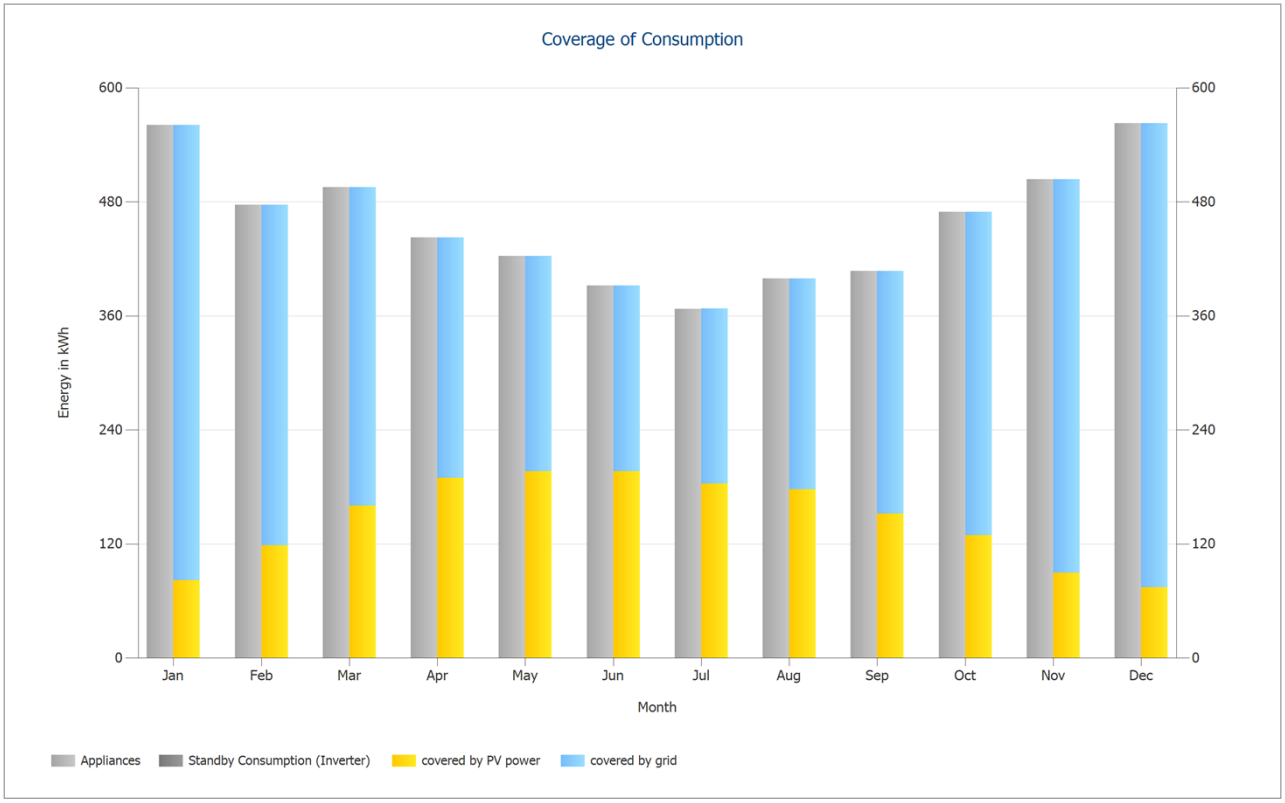


Figure: Coverage of Consumption

Financial Analysis

Overview

System Data

Grid Export in the first year (incl. module degradation)	2,166	kWh/Year
PV Generator Output	4.4	kWp
Start of Operation of the System	18/12/2018	
Assessment Period	25	Years
Interest on Capital	1	%

Economic Parameters

Internal Rate of Return (IRR)	6.48	%
Accrued Cash Flow (Cash Balance)	4,764.20	£
Amortization Period	13.8	Years
Electricity Production Costs	0.0867	£/kWh

Payment Overview

Specific Investment Costs	1,200.00	£/kWp
Investment Costs	5,280.00	£
One-off Payments	0.00	£
Incoming Subsidies	0.00	£
Annual Costs	105.60	£/Year
Other Revenue or Savings	0.00	£/Year

Remuneration and Savings

Total Payment from Utility in First Year	261.20	£/Year
First year savings	229.62	£/Year
FIT 2019 (Jan - Mar) Higher Rate - Export tariff only - Building Attached		
Validity	18/12/2018 - 17/12/2038	
Specific feed-in / export Remuneration	0.0524	£/kWh
Feed-in / Export Tariff	114.0591	£/Year
Inflation Rate for Feed-in / Export Tariff	1.00	%/Year
FIT 2019 (Jan - Mar) Higher Rate - Generation tariff only - Building Attached		
Validity	18/12/2018 - 17/12/2038	
Specific generation remuneration	0.0379	£/kWh
Generation Tariff	147.14	£/Year
Inflation Rate for Generation Tariff	1.00	%/Year
UK Energy Tariff TCR 15.62 p/kWh (Example)		
Energy Price	0.135	£/kWh
Base Price	8.2	£/Month
Inflation Rate for Energy Price	5	%/Year

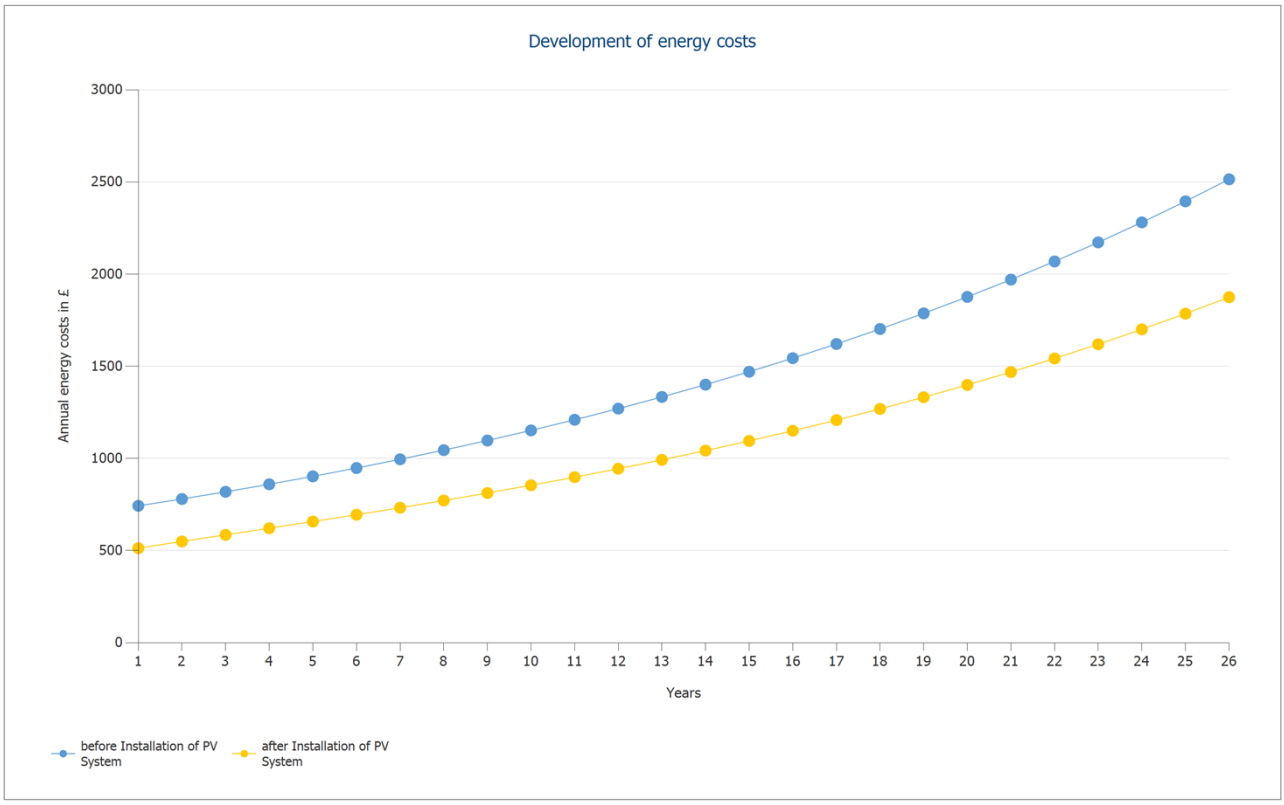


Figure: Development of energy costs

Cash flow

Cash flow

	Year 1	Year 2	Year 3	Year 4	Year 5
Investments	-£5,280.00	£0.00	£0.00	£0.00	£0.00
Operating costs	-£104.55	-£103.52	-£102.49	-£101.48	-£100.47
Feed-in / Export Tariff	£254.97	£247.31	£238.84	£232.49	£227.73
Electricity Savings	£221.37	£225.87	£226.64	£229.25	£233.36
Annual Cash Flow	**-£4,908.21**	**£369.66**	**£362.99**	**£360.26**	**£360.61**
Accrued Cash Flow (Cash Balance)	-£4,908.21	-£4,538.55	-£4,175.56	-£3,815.30	-£3,454.70

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	-£99.48	-£98.50	-£97.52	-£96.55	-£95.60
Feed-in / Export Tariff	£224.16	£221.48	£219.48	£217.98	£216.86
Electricity Savings	£238.72	£245.16	£252.51	£260.68	£269.57
Annual Cash Flow	**£363.40**	**£368.15**	**£374.47**	**£382.10**	**£390.83**
Accrued Cash Flow (Cash Balance)	-£3,091.29	-£2,723.15	-£2,348.68	-£1,966.58	-£1,575.75

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	-£94.65	-£93.71	-£92.79	-£91.87	-£90.96
Feed-in / Export Tariff	£216.02	£215.39	£214.92	£214.57	£214.31
Electricity Savings	£279.13	£289.31	£300.09	£311.45	£323.37
Annual Cash Flow	**£400.49**	**£410.99**	**£422.23**	**£434.15**	**£446.72**
Accrued Cash Flow (Cash Balance)	-£1,175.26	-£764.27	-£342.05	£92.10	£538.83

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	-£90.06	-£89.17	-£88.28	-£87.41	-£86.54
Feed-in / Export Tariff	£214.12	£213.98	£213.88	£213.80	£213.75
Electricity Savings	£335.85	£348.90	£362.53	£376.73	£391.53
Annual Cash Flow	**£459.92**	**£473.72**	**£488.12**	**£503.12**	**£518.73**
Accrued Cash Flow (Cash Balance)	£998.74	£1,472.46	£1,960.58	£2,463.70	£2,982.44

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	-£85.69	-£84.84	-£84.00	-£83.17	-£82.34
Feed-in / Export Tariff	£0.00	£0.00	£0.00	£0.00	£0.00
Electricity Savings	£406.95	£422.99	£439.69	£457.06	£475.12
Annual Cash Flow	**£321.26**	**£338.15**	**£355.69**	**£373.89**	**£392.78**
Accrued Cash Flow (Cash Balance)	£3,303.70	£3,641.85	£3,997.54	£4,371.42	£4,764.20

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

observation period. This is done in the first year.

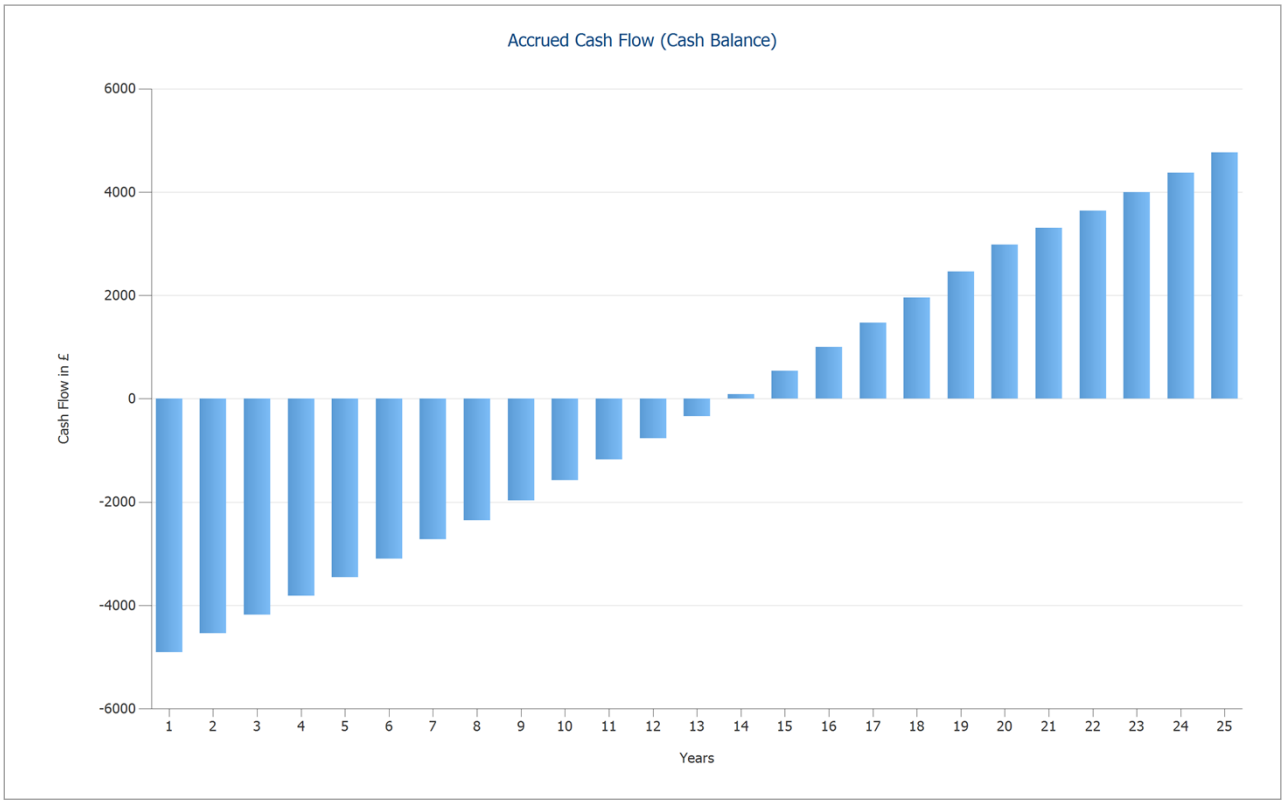


Figure: Accrued Cash Flow (Cash Balance)

Plans and parts list

Photo from Photo Plan

Figure: Photo Preview, 1. Module Area - Module Area 1

Roof Plan

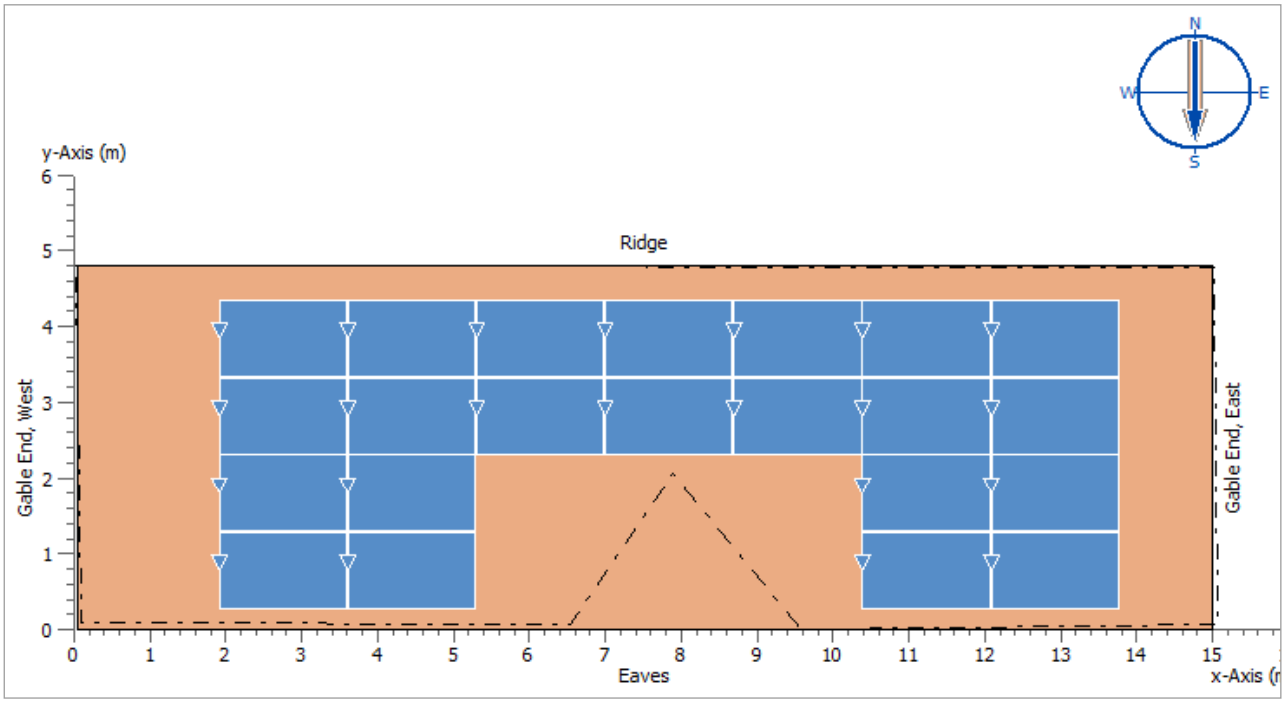


Figure: Roof View, 1. Module Area - Module Area 1

Circuit Diagram

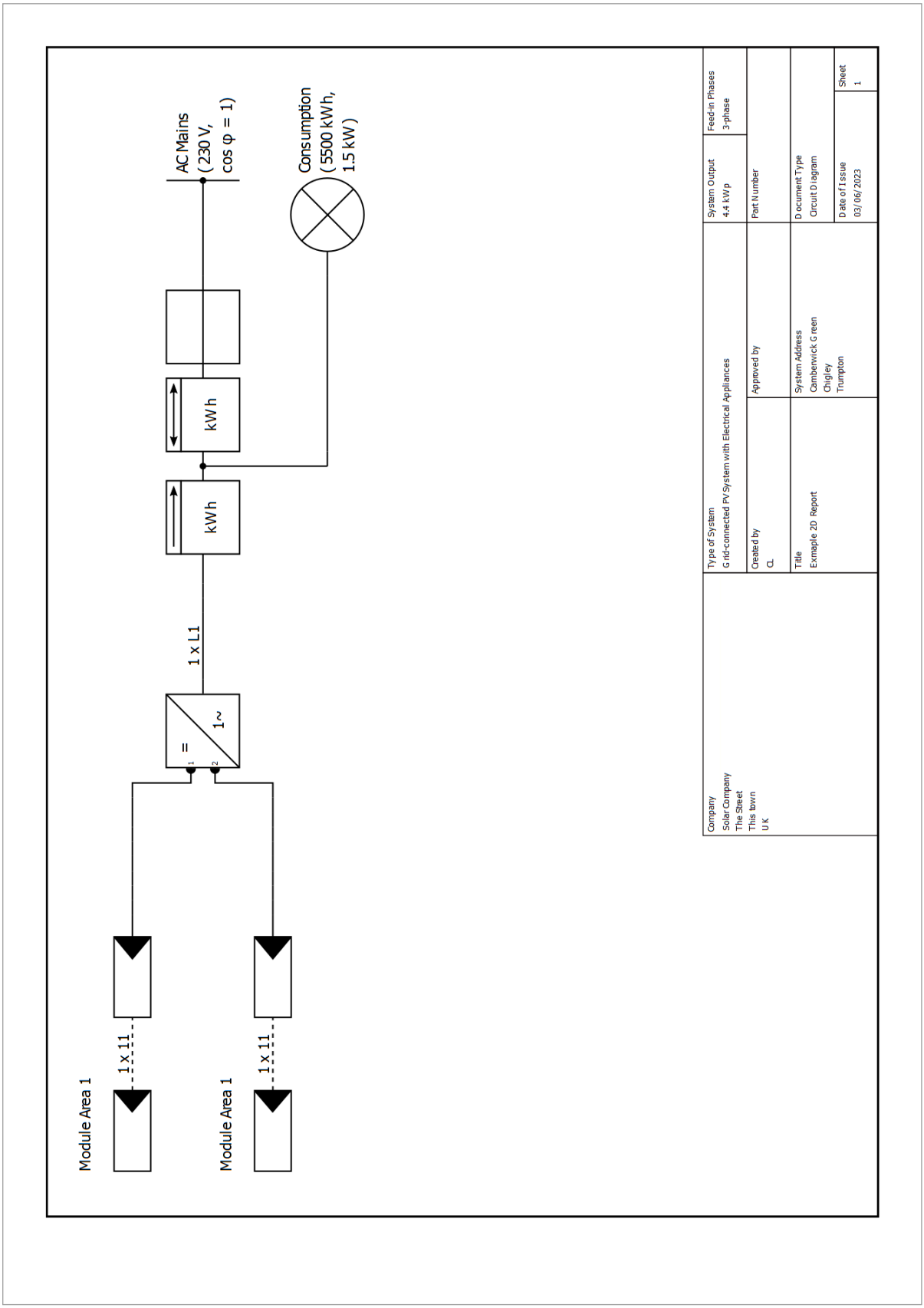


Figure: Circuit Diagram

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Example	Example poly 200 W	22	Piece
2	Inverter		Example	2 MPP - 3400 W	1	Piece
3	Components			Feed-in Meter	1	Piece
4	Components			Bidirectional Meter	1	Piece
5	Components			House connection	1	Piece