

PVsyst - Simulation report

Grid-Connected System

Project: Nuevo Proyecto

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 1100 Wp

Lavapiés - Spain

Author



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PVsyst V7.4.8

VC0, Simulation date:
08/09/24 23:15
with V7.4.8

Project summary

Geographical Site

Lavapiés
Spain

Situation

Latitude 40.40 °N
Longitude -3.70 °W
Altitude 626 m
Time zone UTC+1

Project settings

Albedo 0.20

Weather data

Lavapiés
x - Sintético

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation

Fixed plane
Tilt/Azimuth 30 / -19 °

Near Shadings

No Shadings

User's needs

Unlimited load (grid)

System information

PV Array

Nb. of modules 5 units
Pnom total 1100 Wp

Inverters

Nb. of units 1 unit
Pnom total 1200 W
Pnom ratio 0.917

Results summary

Produced Energy 1464.50 kWh/year Specific production 1331 kWh/kWp/year Perf. Ratio PR 72.21 %

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General parameters

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation

Orientation

Fixed plane

Tilt/Azimuth 30 / -19 °

Sheds configuration

No 3D scene defined

Models used

Transposition Perez
Diffuse Perez, Meteonorm
Circumsolar separate

Horizon

Free Horizon

Near Shadings

No Shadings

User's needs

Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer

Model

Generic
Poly 250 Wp 60 cells

(Custom parameters definition)

Unit Nom. Power

220 Wp

Number of PV modules

5 units

Nominal (STC)

1100 Wp

Modules

1 strings x 5 In series

At operating cond. (50°C)

Pmpp

990 Wp

U mpp

130 V

I mpp

7.6 A

Total PV power

Nominal (STC)

1.10 kWp

Total

5 modules

Module area

8.1 m²

Inverter

Manufacturer

Model

Generic
Sunny Boy 1200

(Original PVsyst database)

Unit Nom. Power

1.20 kWac

Number of inverters

1 unit

Total power

1.2 kWac

Operating voltage

100-320 V

Pnom ratio (DC:AC)

0.92

Total inverter power

Total power

1.2 kWac

Number of inverters

1 unit

Pnom ratio

0.92

Array losses

Array Soiling Losses

Loss Fraction 10.0 %

Thermal Loss factor

Module temperature according to irradiance

Uc (const)

20.0 W/m²K

Uv (wind)

0.0 W/m²K/m/s

DC wiring losses

Global array res.

286 mΩ

Loss Fraction

1.5 % at STC

Module Quality Loss

Loss Fraction -0.8 %

Module mismatch losses

Loss Fraction

2.0 % at MPP

IAM loss factor

Incidence effect (IAM): Fresnel smooth glass, n = 1.526

0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.998	0.981	0.948	0.862	0.776	0.636	0.403	0.000



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Main results

System Production

Produced Energy 1464.50 kWh/year

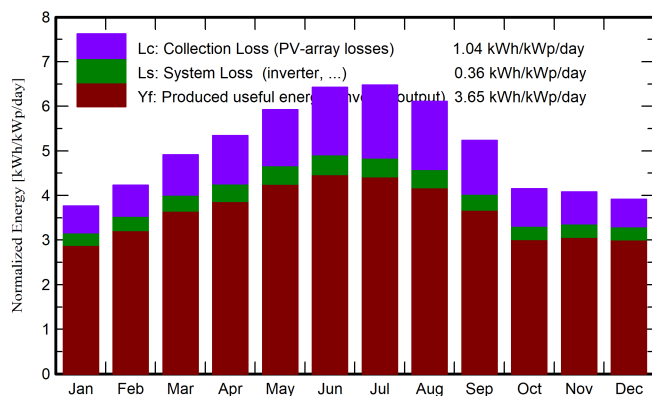
Specific production

1331 kWh/kWp/year

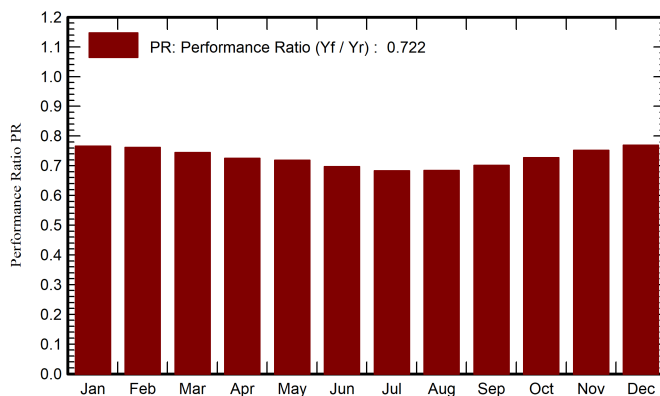
Perf. Ratio PR

72.21 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

	GlobHor	DiffHor	T_Amb	GlobInc	GlobEff	EArray	E_Grid	PR
	kWh/m ²	kWh/m ²	°C	kWh/m ²	kWh/m ²	kWh	kWh	ratio
January	71.6	28.49	4.90	116.7	102.4	108.2	98.4	0.766
February	84.3	35.84	5.20	118.4	104.0	109.1	99.2	0.762
March	125.9	50.28	8.83	152.2	133.2	137.0	124.6	0.744
April	147.9	59.85	12.78	160.3	140.1	140.8	127.8	0.725
May	184.1	68.08	16.50	183.6	160.1	159.5	145.2	0.719
June	201.0	66.09	21.60	192.7	167.9	162.3	147.8	0.697
July	204.7	62.81	26.40	200.7	175.1	165.4	150.8	0.683
August	178.9	56.44	25.40	189.4	165.6	156.6	142.6	0.684
September	135.0	48.30	20.60	157.1	137.6	133.3	121.3	0.702
October	97.0	40.05	15.29	128.7	112.7	113.3	102.9	0.727
November	77.8	28.67	9.34	122.5	107.5	111.2	101.3	0.752
December	68.8	23.37	5.65	121.4	106.7	112.8	102.8	0.769
Year	1577.0	568.27	14.43	1843.8	1612.8	1609.5	1464.5	0.722

Legends

GlobHor Global horizontal irradiation

DiffHor Horizontal diffuse irradiation

T_Amb Ambient Temperature

GlobInc Global incident in coll. plane

GlobEff Effective Global, corr. for IAM and shadings

EArray Effective energy at the output of the array

E_Grid Energy injected into grid

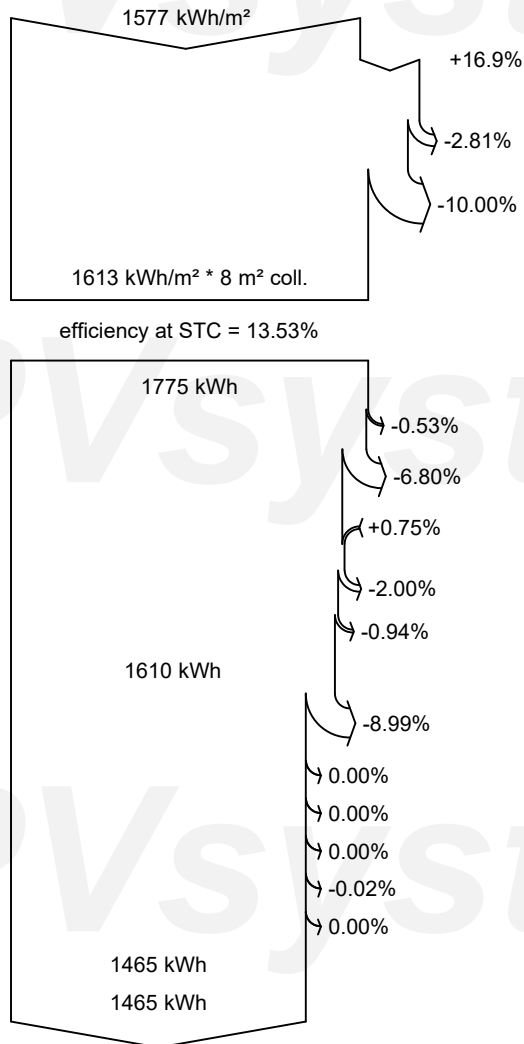
PR Performance Ratio



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Loss diagram



Global horizontal irradiation

Global incident in coll. plane

IAM factor on global

Soiling loss factor

Effective irradiation on collectors

PV conversion

Array nominal energy (at STC effic.)

PV loss due to irradiance level

PV loss due to temperature

Module quality loss

Module array mismatch loss

Ohmic wiring loss

Array virtual energy at MPP

Inverter Loss during operation (efficiency)

Inverter Loss over nominal inv. power

Inverter Loss due to max. input current

Inverter Loss over nominal inv. voltage

Inverter Loss due to power threshold

Inverter Loss due to voltage threshold

Available Energy at Inverter Output

Energy injected into grid

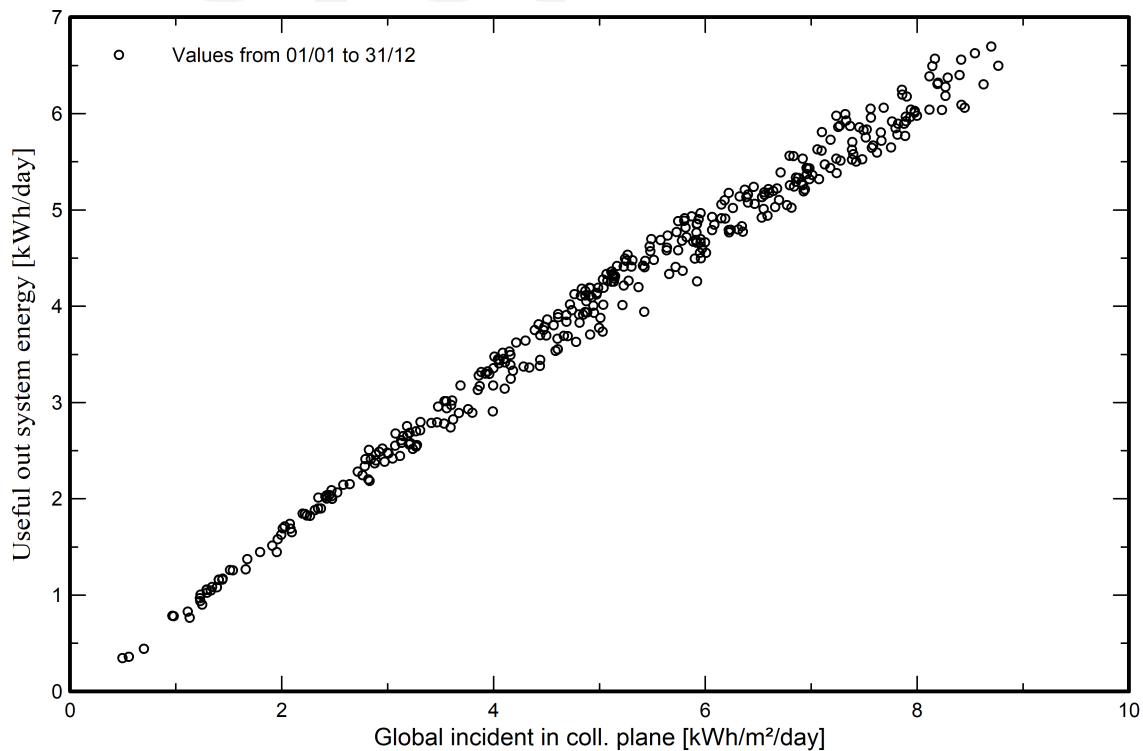


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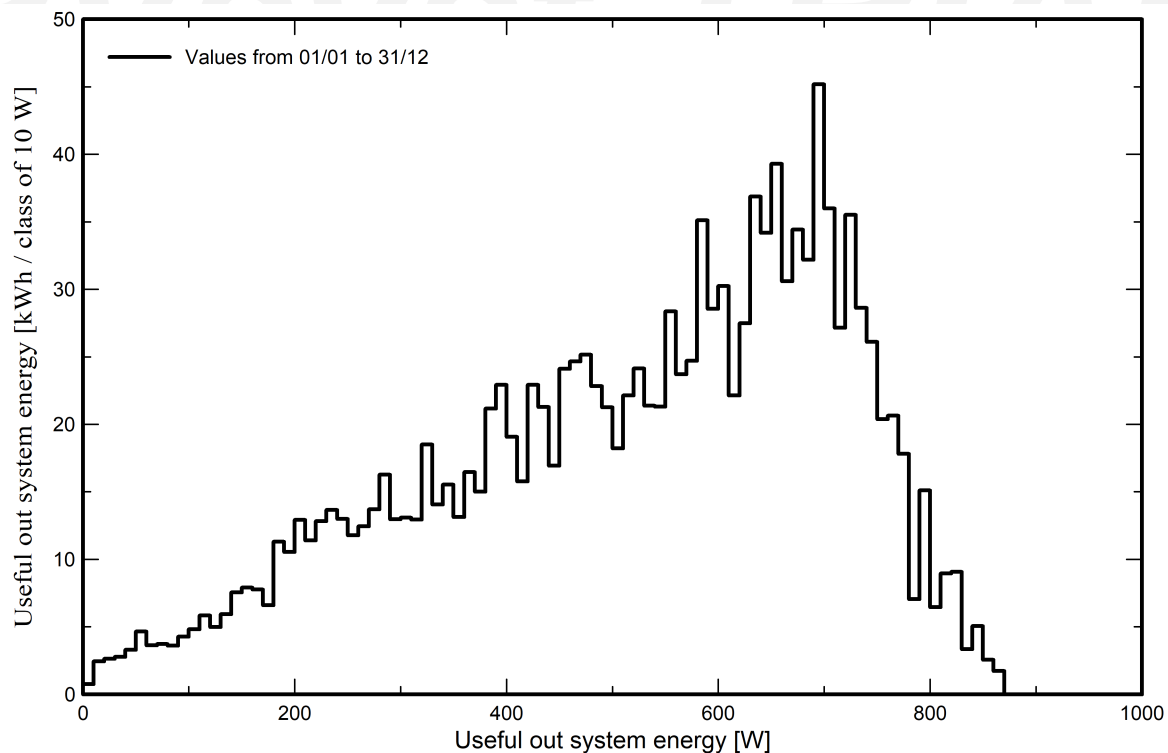
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Predef. graphs

Diagrama entrada/salida diaria



Distribución de potencia de salida del sistema

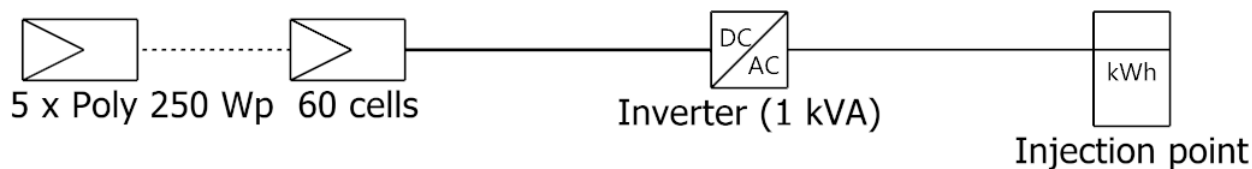




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Single-line diagram



PV module	Poly 250 Wp 60 cells
Inverter	Sunny Boy 1200
String	5 x Poly 250 Wp 60 cells

Nuevo Proyecto

VC0 : Nueva variante de simulación

08/09/24