

PVsyst - Simulation report

Grid-Connected System

Project: Cliente 929 kwh/mes

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 10.80 kWp

Comuna 6 La Concordia - Colombia



PVsyst V7.4.8

VCO, Simulation date:
28/09/25 00:00
with V7.4.8

Project summary

Geographical Site
Comuna 6 La Concordia
Colombia

Situation
Latitude 7.11 °N
Longitude -73.12 °W
Altitude 965 m
Time zone UTC-5

Project settings
Albedo 0.20

Weather data
Comuna 6 La Concordia
Meteonorm 8.1 (2016-2021), Sat=100% - Sintético

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation

Fixed plane
Tilt/Azimuth 10 / 0 °

Near Shadings

No Shadings

User's needs

Unlimited load (grid)

System information

PV Array

Nb. of modules 20 units
Pnom total 10.80 kWp

Inverters

Nb. of units 1 unit
Pnom total 10.00 kWac
Pnom ratio 1.080

Results summary

Produced Energy 17231.74 kWh/year Specific production 1596 kWh/kWp/year Perf. Ratio PR 83.48 %

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General parameters

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation

Orientation

Fixed plane

Tilt/Azimuth 10 / 0 °

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

JAM72-S30-540-MR

(Original PVsyst database)

Unit Nom. Power

540 Wp

Number of PV modules

20 units

Nominal (STC)

10.80 kWp

Modules

2 string x 10 In series

At operating cond. (50°C)

Pmpp

9.91 kWp

U mpp

377 V

I mpp

26 A

Total PV power

Nominal (STC)

11 kWp

Total

20 modules

Module area

51.7 m²

Inverter

Manufacturer

Model

Generic

SUN2000-10KTL-M2-380V

(Original PVsyst database)

Unit Nom. Power

10.00 kWac

Number of inverters

2 * MPPT 50% 1 unit

Total power

10.0 kWac

Operating voltage

160-950 V

Max. power (=>60°C)

11.00 kWac

Pnom ratio (DC:AC)

1.08

No power sharing between MPPTs

Total inverter power

Total power

10 kWac

Number of inverters

1 unit

Pnom ratio

1.08

Array losses

Thermal Loss factor

Module temperature according to irradiance

Uc (const) 20.0 W/m²KUv (wind) 0.0 W/m²K/m/s

DC wiring losses

Global array res.

236 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): User defined profile

0°	30°	50°	65°	70°	75°	80°	85°	90°
1.000	1.000	0.999	0.953	0.910	0.853	0.725	0.448	0.000



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Main results

System Production

Produced Energy 17231.74 kWh/year

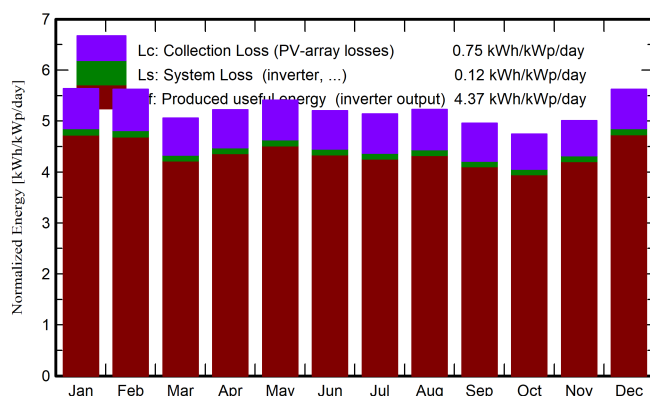
Specific production

1596 kWh/kWp/year

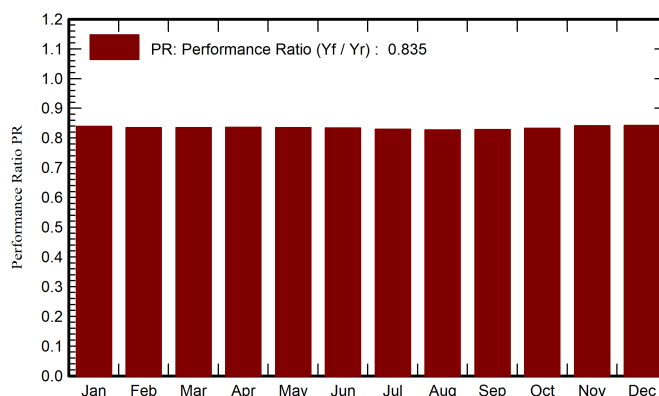
Perf. Ratio PR

83.48 %

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	162.1	68.21	25.94	174.7	172.5	1626	1584	0.839
February	149.9	61.91	26.23	157.4	155.1	1457	1420	0.835
March	154.7	72.66	26.70	156.8	154.3	1452	1414	0.835
April	160.2	71.12	26.61	156.7	153.9	1452	1414	0.836
May	176.7	75.36	27.47	167.6	164.3	1552	1512	0.835
June	167.6	63.04	27.19	156.2	152.8	1444	1407	0.834
July	170.1	61.93	27.77	159.3	155.5	1465	1427	0.830
August	167.9	65.88	28.33	162.1	159.0	1488	1449	0.828
September	149.0	71.47	28.09	148.8	146.2	1367	1331	0.828
October	142.7	72.58	27.68	147.1	144.7	1359	1324	0.833
November	141.2	69.97	26.19	150.3	147.6	1400	1365	0.841
December	160.0	65.63	26.18	174.3	171.8	1625	1585	0.842
Year	1902.3	819.76	27.04	1911.3	1877.7	17687	17232	0.835

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

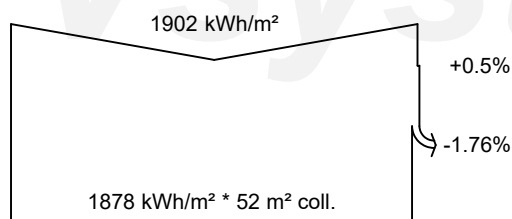
PR Performance Ratio



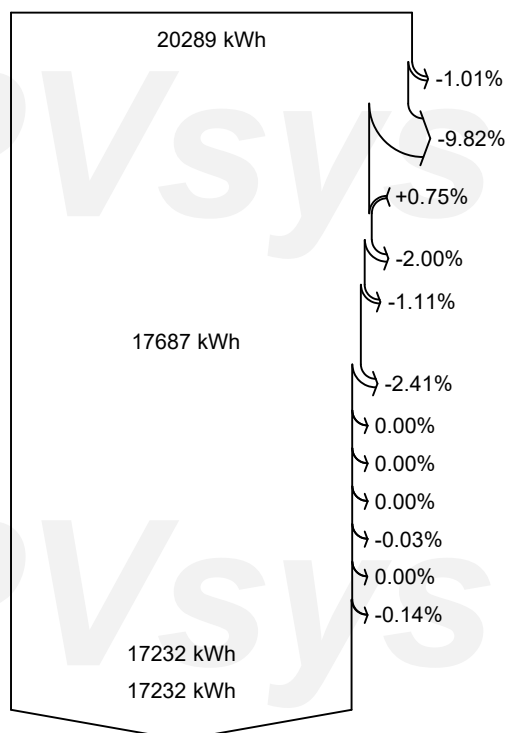
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Loss diagram



efficiency at STC = 20.91%



Global horizontal irradiation

Global incident in coll. plane

IAM factor on global

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

Night consumption

Available Energy at Inverter Output

Energy injected into grid

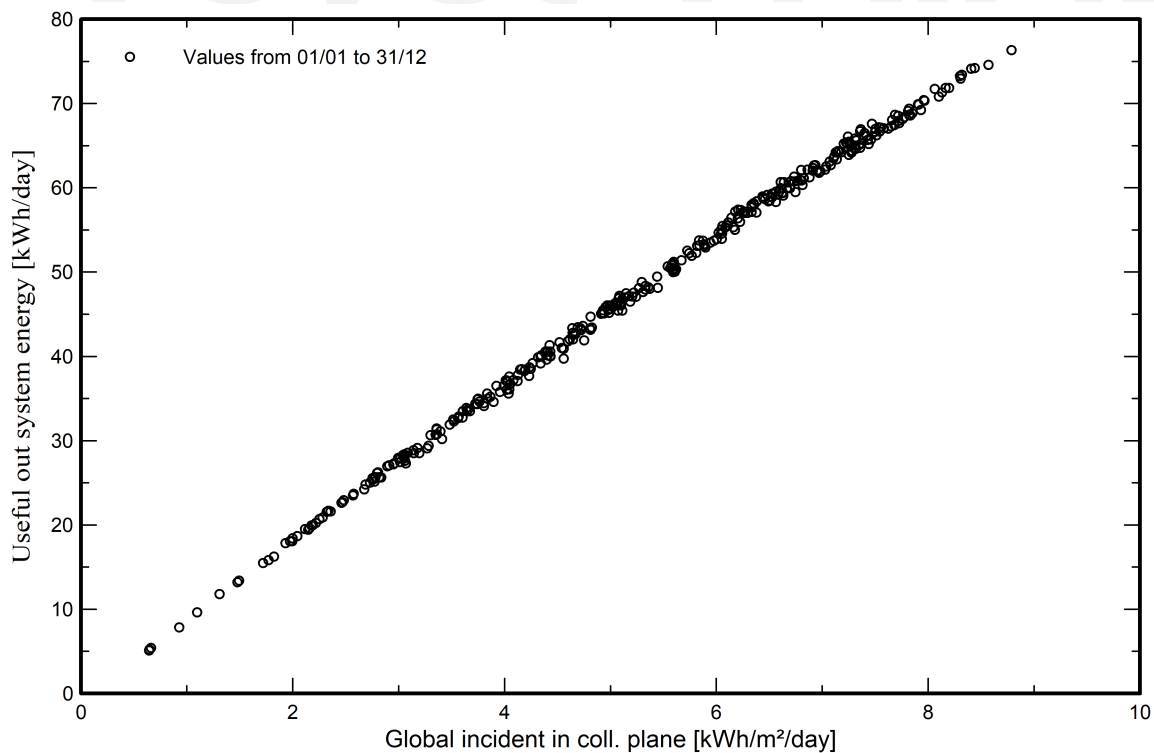


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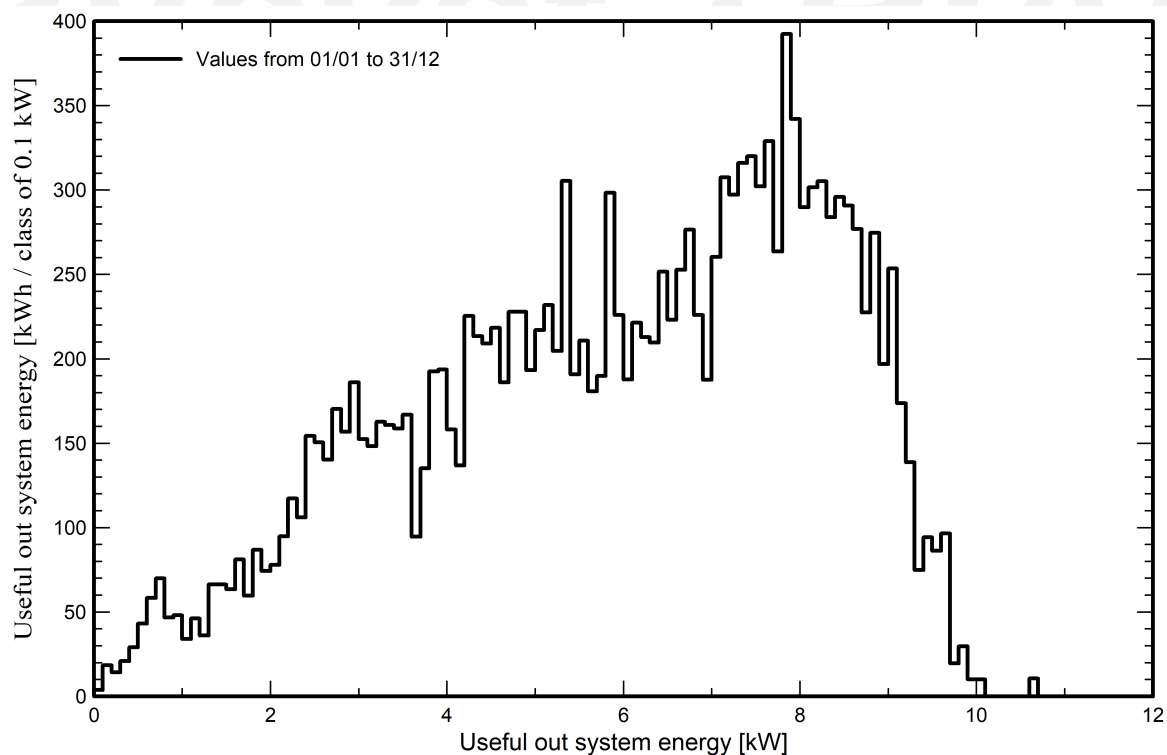
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Predef. graphs

Diagrama entrada/salida diaria



Distribución de potencia de salida del sistema

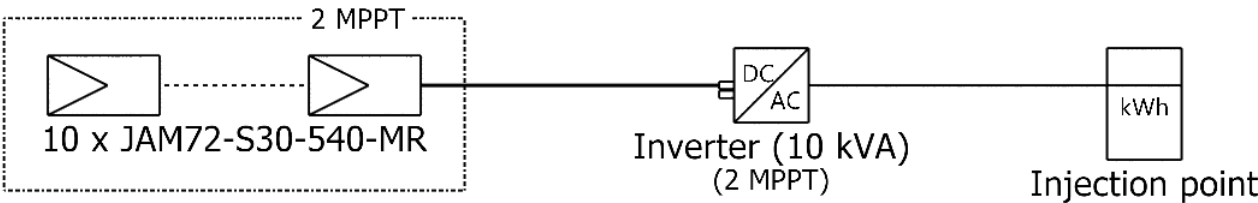




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Single-line diagram



PV module	JAM72-S30-540-MR
Inverter	SUN2000-10KTL-M2-380V
String	10 x JAM72-S30-540-MR

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VC0 : Nueva variante de simulación

28/09/25