

PVsyst - Simulation report

Grid-Connected System

Project: Cliente 240 kwh/mes

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 4720 Wp

Comuna 6 La Concordia - Colombia

**PVsyst V7.4.8**

VC0, Simulation date:
27/09/25 21:46
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 8 units
Pnom total 4720 Wp

Inverters

Nb. of units 1 unit
Pnom total 4000 W
Pnom ratio 1.180

Results summary

Produced Energy	7348.49 kWh/year	Specific production	1557 kWh/kWp/year	Perf. Ratio PR	81.45 %
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Table of contents

Project and results summary	2
General parameters, PV Array Characteristics, System losses	3
Main results	4
Loss diagram	5
Predef. graphs	6
Single-line diagram	7



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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

JAM78-S30-590-MR

(Original PVsyst database)

Unit Nom. Power

590 Wp

Number of PV modules

8 units

Nominal (STC)

4720 Wp

Modules

2 string x 4 In series

At operating cond. (50°C)

Pmpp

4307 Wp

U mpp

162 V

I mpp

27 A

Total PV power

Nominal (STC)

4.72 kWp

Total

8 modules

Module area

22.4 m²

Inverter

Manufacturer

Model

Generic

SUN2000-4KTL-L1

(Original PVsyst database)

Unit Nom. Power

4.00 kWac

Number of inverters

2 * MPPT 50% 1 unit

Total power

4.0 kWac

Operating voltage

80-600 V

Max. power (=>50°C)

4.40 kWac

Pnom ratio (DC:AC)

1.18

No power sharing between MPPTs

Total inverter power

Total power

4 kWac

Number of inverters

1 unit

Pnom ratio

1.18

Array losses

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.

101 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 7348.49 kWh/year

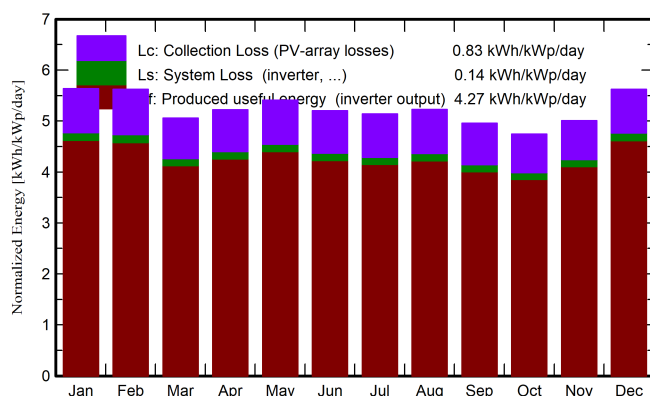
Specific production

1557 kWh/kWp/year

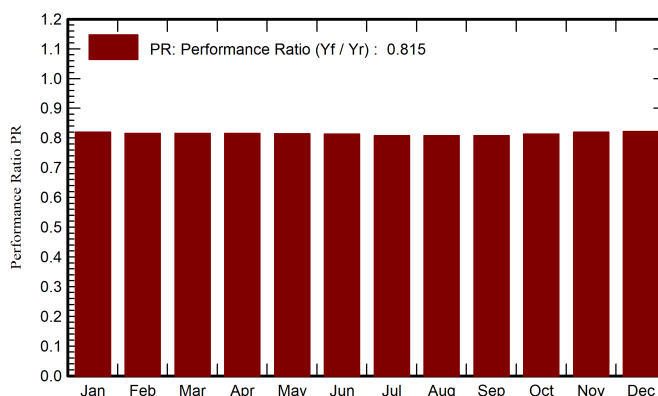
Perf. Ratio PR

81.45 %

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	170.2	698.9	676.5	0.820
February	149.9	61.91	26.23	157.4	153.1	626.0	605.8	0.816
March	154.7	72.66	26.70	156.8	152.3	624.5	603.8	0.816
April	160.2	71.12	26.61	156.7	151.7	623.7	603.2	0.816
May	176.7	75.36	27.47	167.6	161.8	665.9	644.4	0.814
June	167.6	63.04	27.19	156.2	150.4	619.4	599.2	0.813
July	170.1	61.93	27.77	159.3	153.0	628.2	607.6	0.808
August	167.9	65.88	28.33	162.1	156.8	638.8	617.8	0.808
September	149.0	71.47	28.09	148.8	144.1	587.0	567.6	0.808
October	142.7	72.58	27.68	147.1	142.6	583.8	564.6	0.813
November	141.2	69.97	26.19	150.3	145.4	601.2	581.9	0.820
December	160.0	65.63	26.18	174.3	169.4	698.3	676.2	0.822
Year	1902.3	819.76	27.04	1911.3	1850.7	7595.7	7348.5	0.815

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

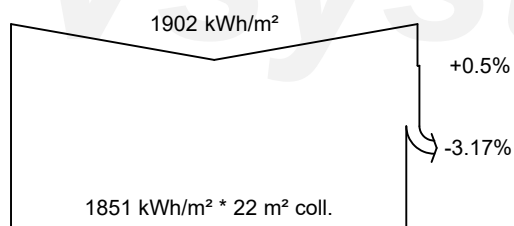
PR Performance Ratio



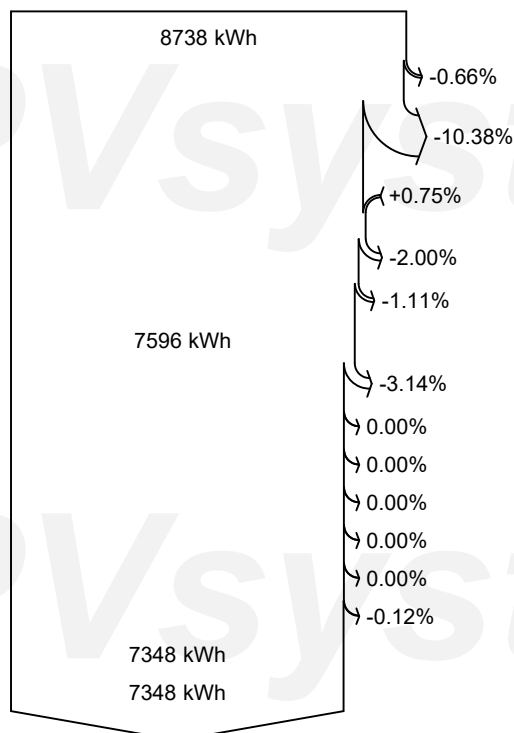
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Loss diagram



efficiency at STC = 21.11%



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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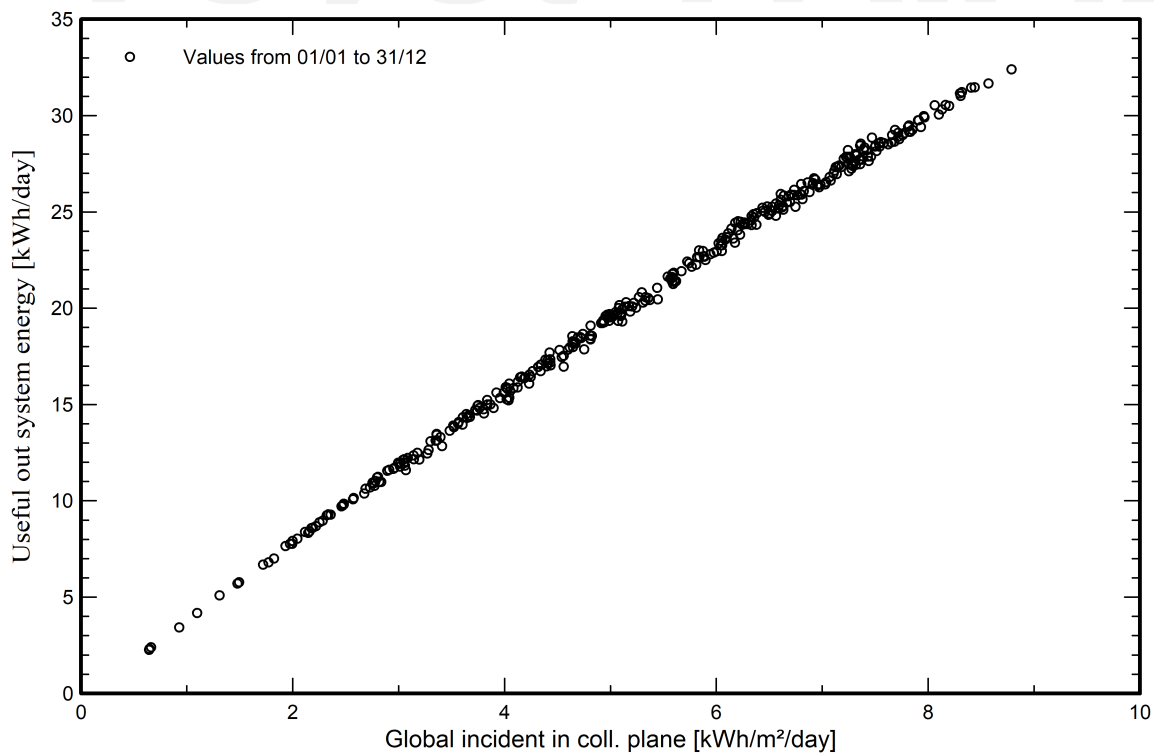
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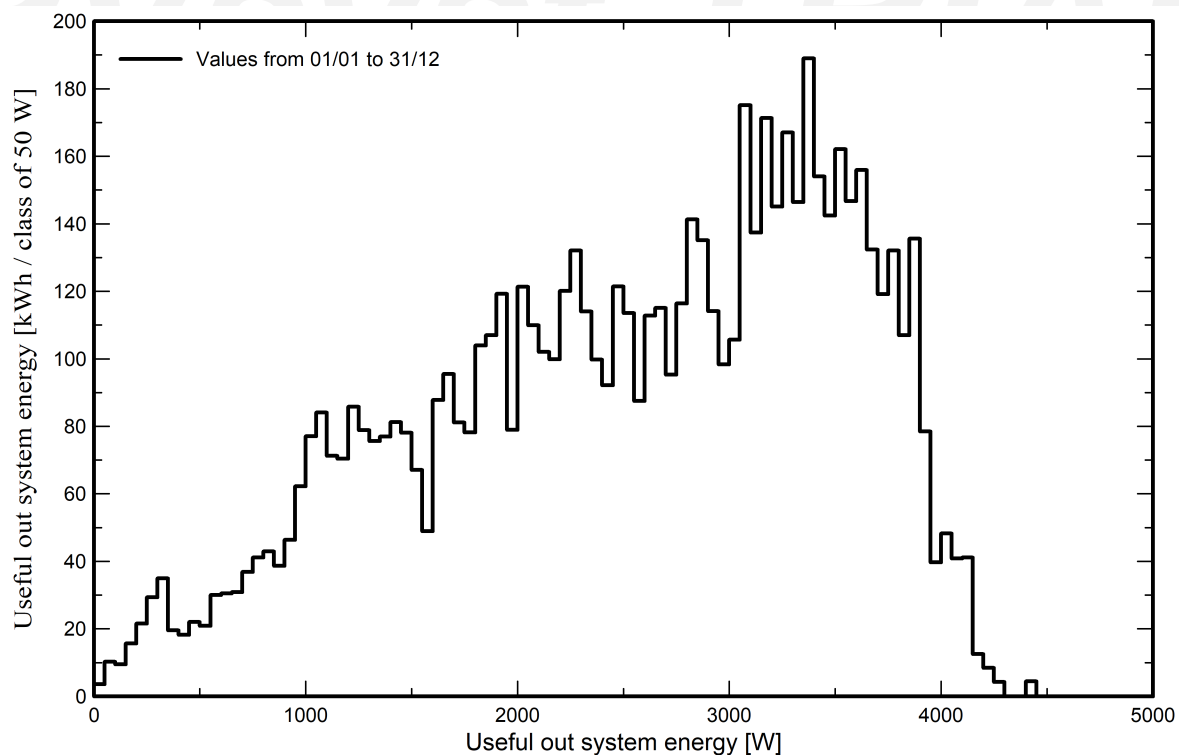
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Predef. graphs

Diagrama entrada/salida diaria



Distribución de potencia de salida del sistema

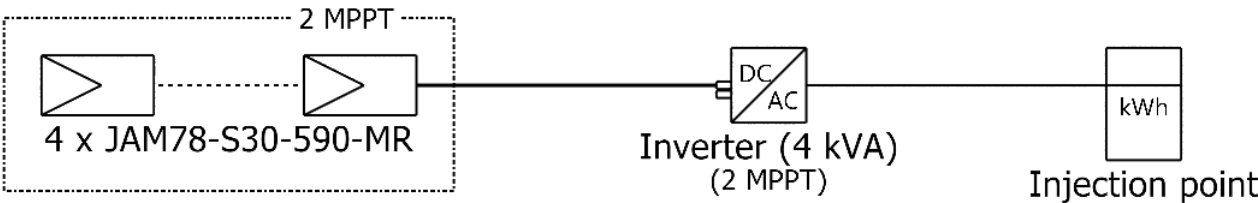




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Single-line diagram



PV module	JAM78-S30-590-MR
Inverter	SUN2000-4KTL-L1
String	4 x JAM78-S30-590-MR

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VC0 : Nueva variante de simulación

27/09/25