

# PVsyst - Simulation report

## Grid-Connected System

Project: Cliente 700 kwh/mes

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 5.90 kWp

Comuna 6 La Concordia - Colombia

**PVsyst V7.4.8**

VC0, Simulation date:  
27/09/25 23:40  
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 10 units  
Pnom total 5.90 kWp

**Inverters**

Nb. of units 1 unit  
Pnom total 4950 W  
Pnom ratio 1.192

**Results summary**

Produced Energy 9068.86 kWh/year Specific production 1537 kWh/kWp/year Perf. Ratio PR 80.42 %

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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

10 units

Nominal (STC)

5.90 kWp

Modules

2 string x 5 In series

## At operating cond. (50°C)

Pmpp

5.38 kWp

U mpp

202 V

I mpp

27 A

## Total PV power

Nominal (STC)

6 kWp

Total

10 modules

Module area

28.0 m<sup>2</sup>

## Inverter

Manufacturer

Model

Generic

SUN2000-4.95KTL-JPL1

(Original PVsyst database)

Unit Nom. Power

4.95 kWac

Number of inverters

2 \* MPPT 50% 1 unit

Total power

5.0 kWac

Operating voltage

90-560 V

Max. power (=&gt;40°C)

5.21 kWac

Pnom ratio (DC:AC)

1.19

No power sharing between MPPTs

## Total inverter power

Total power

5 kWac

Number of inverters

1 unit

Pnom ratio

1.19

## Array losses

## Thermal Loss factor

Module temperature according to irradiance

Uc (const) 20.0 W/m<sup>2</sup>KUv (wind) 0.0 W/m<sup>2</sup>K/m/s

## DC wiring losses

Global array res.

126 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 9068.86 kWh/year

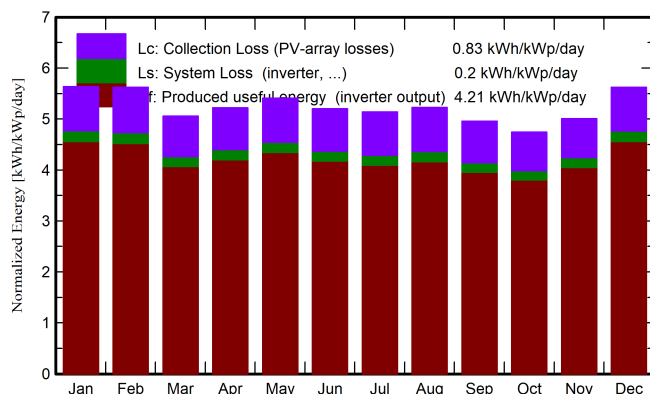
Specific production

1537 kWh/kWp/year

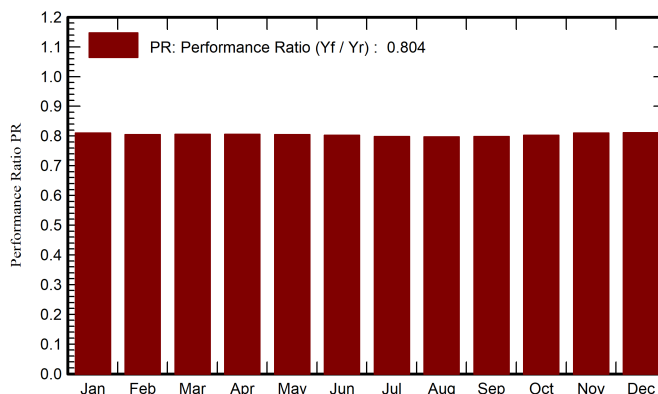
Perf. Ratio PR

80.42 %

Normalized productions (per installed kWp)



Performance Ratio PR



### Balances and main results

	GlobHor kWh/m <sup>2</sup>	DiffHor kWh/m <sup>2</sup>	T_Amb °C	GlobInc kWh/m <sup>2</sup>	GlobEff kWh/m <sup>2</sup>	EArray kWh	E_Grid kWh	PR ratio
January	162.1	68.21	25.94	174.7	170.2	873.6	834.8	0.810
February	149.9	61.91	26.23	157.4	153.1	782.2	747.3	0.805
March	154.7	72.66	26.70	156.8	152.3	780.7	745.2	0.805
April	160.2	71.12	26.61	156.7	151.7	779.6	744.5	0.805
May	176.7	75.36	27.47	167.6	161.8	832.3	795.4	0.804
June	167.6	63.04	27.19	156.2	150.4	774.3	739.5	0.803
July	170.1	61.93	27.77	159.3	153.0	785.2	749.9	0.798
August	167.9	65.88	28.33	162.1	156.8	798.5	762.5	0.797
September	149.0	71.47	28.09	148.8	144.1	733.7	700.5	0.798
October	142.7	72.58	27.68	147.1	142.6	729.7	696.7	0.803
November	141.2	69.97	26.19	150.3	145.4	751.5	718.0	0.810
December	160.0	65.63	26.18	174.3	169.4	872.8	834.4	0.811
Year	1902.3	819.76	27.04	1911.3	1850.7	9494.3	9068.9	0.804

#### 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

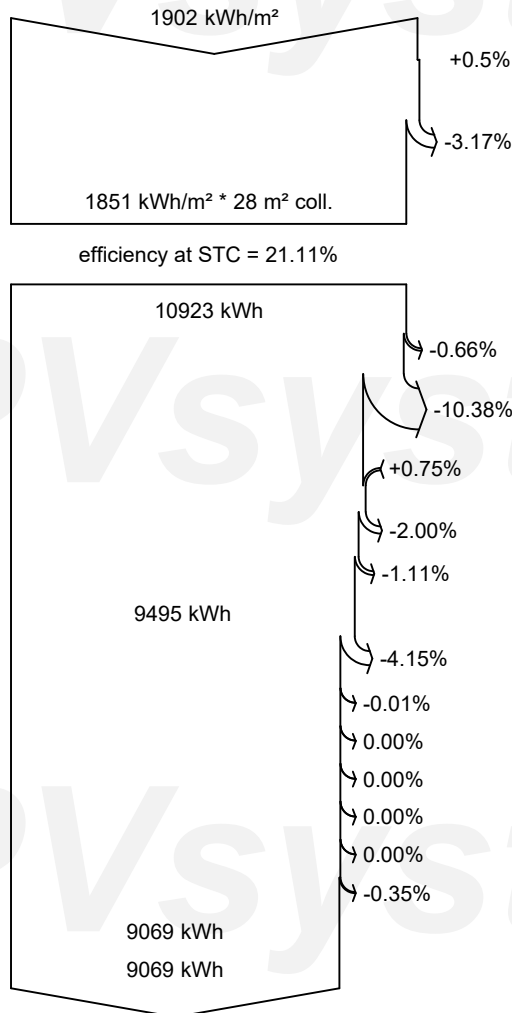
PR Performance Ratio



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**Loss diagram**



**Global horizontal irradiation**  
**Global incident in coll. plane**

IAM factor on global

**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 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**

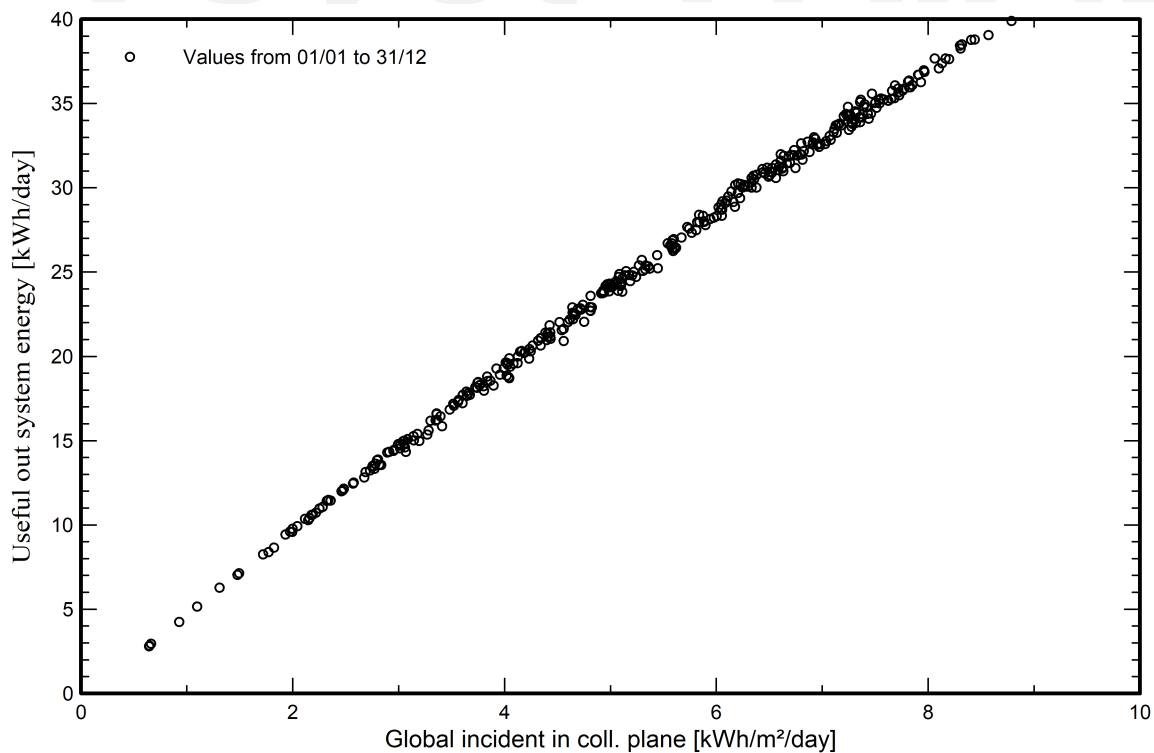


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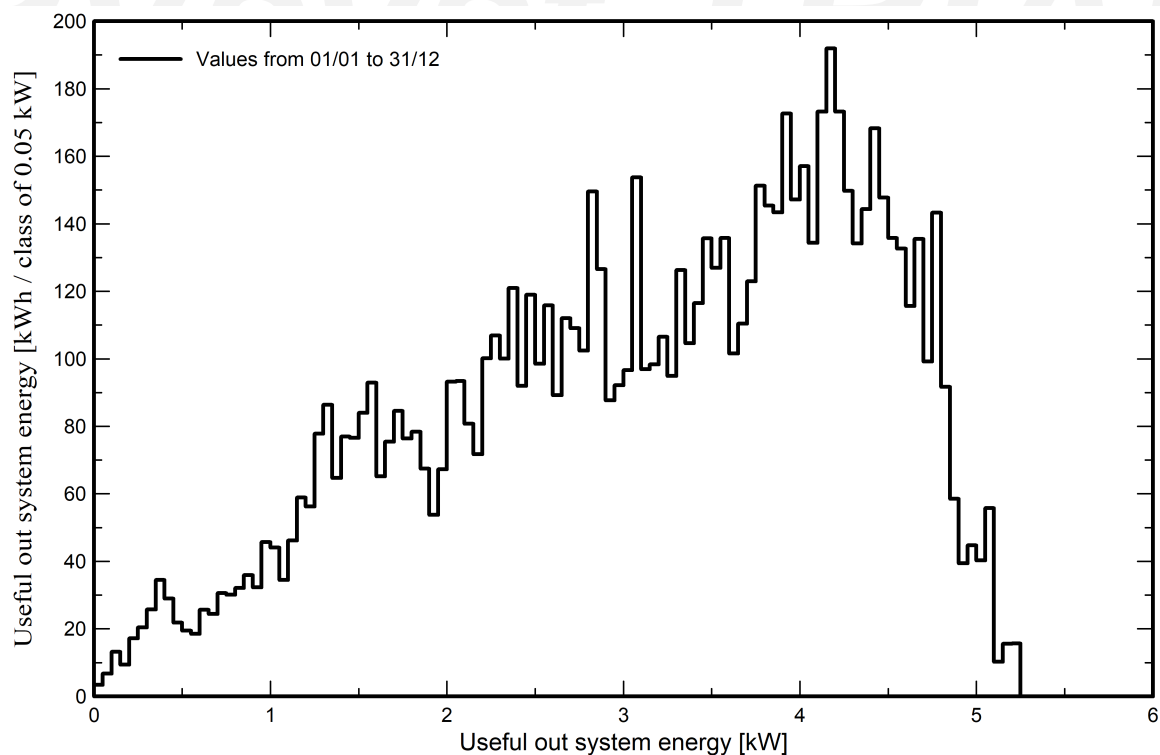
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**Predef. graphs**

**Diagrama entrada/salida diaria**



**Distribución de potencia de salida del sistema**

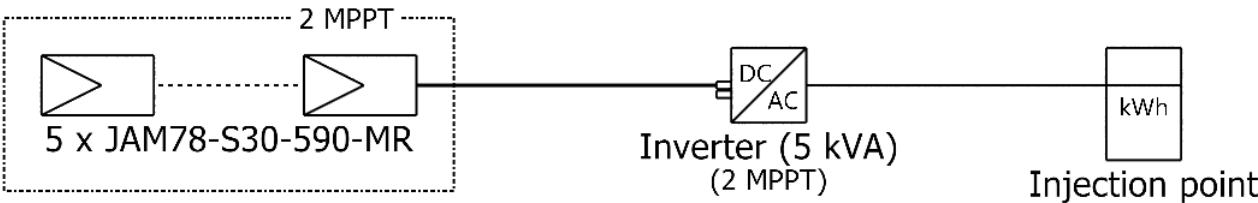




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# Single-line diagram



PV module	JAM78-S30-590-MR
Inverter	SUN2000-4.95KTL-JPL1
String	5 x JAM78-S30-590-MR

mes

VC0 : Nueva variante de simulación

27/09/25