

PVsyst - Simulation report

Grid-Connected System

Project: Cliente 426 kwh/mes

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 4400 Wp

Comuna 6 La Concordia - Colombia

**PVsyst V7.4.8**

VC0, Simulation date:
28/09/25 09:04
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 4400 Wp

Inverters

Nb. of units 1 unit
Pnom total 4000 W
Pnom ratio 1.100

Results summary

Produced Energy 6917.77 kWh/year Specific production 1572 kWh/kWp/year Perf. Ratio PR 82.26 %

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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-S20-440-MR

(Original PVsyst database)

Unit Nom. Power

440 Wp

Number of PV modules

10 units

Nominal (STC)

4400 Wp

Modules

2 string x 5 In series

At operating cond. (50°C)

Pmpp

4035 Wp

U mpp

188 V

I mpp

21 A

Total PV power

Nominal (STC)

4.40 kWp

Total

10 modules

Module area

22.2 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)

1.10

No power sharing between MPPTs

Total inverter power

Total power

4 kWac

Number of inverters

1 unit

Pnom ratio

1.10

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.

145 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	0.992	0.943	0.898	0.813	0.677	0.426	0.000



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Main results

System Production

Produced Energy 6917.77 kWh/year

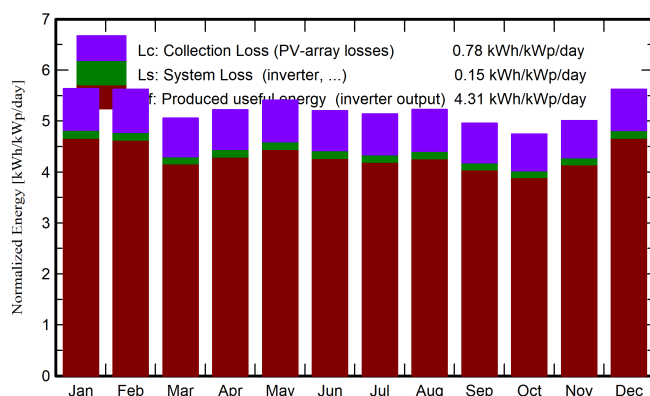
Specific production

1572 kWh/kWp/year

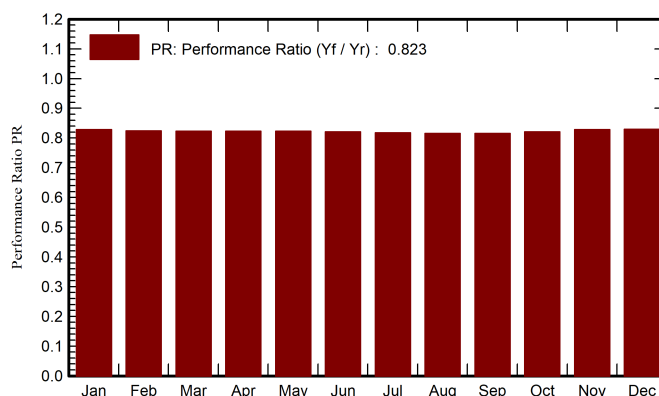
Perf. Ratio PR

82.26 %

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	171.7	658.0	636.7	0.828
February	149.9	61.91	26.23	157.4	154.5	589.4	570.3	0.824
March	154.7	72.66	26.70	156.8	153.6	587.6	567.9	0.823
April	160.2	71.12	26.61	156.7	153.1	587.1	567.7	0.823
May	176.7	75.36	27.47	167.6	163.5	627.2	606.8	0.823
June	167.6	63.04	27.19	156.2	152.0	583.6	564.4	0.821
July	170.1	61.93	27.77	159.3	154.7	592.1	572.6	0.817
August	167.9	65.88	28.33	162.1	158.3	601.8	581.8	0.816
September	149.0	71.47	28.09	148.8	145.4	552.7	534.2	0.816
October	142.7	72.58	27.68	147.1	143.9	549.4	531.1	0.820
November	141.2	69.97	26.19	150.3	146.8	566.0	547.6	0.828
December	160.0	65.63	26.18	174.3	171.0	657.4	636.5	0.830
Year	1902.3	819.76	27.04	1911.3	1868.6	7152.6	6917.8	0.823

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

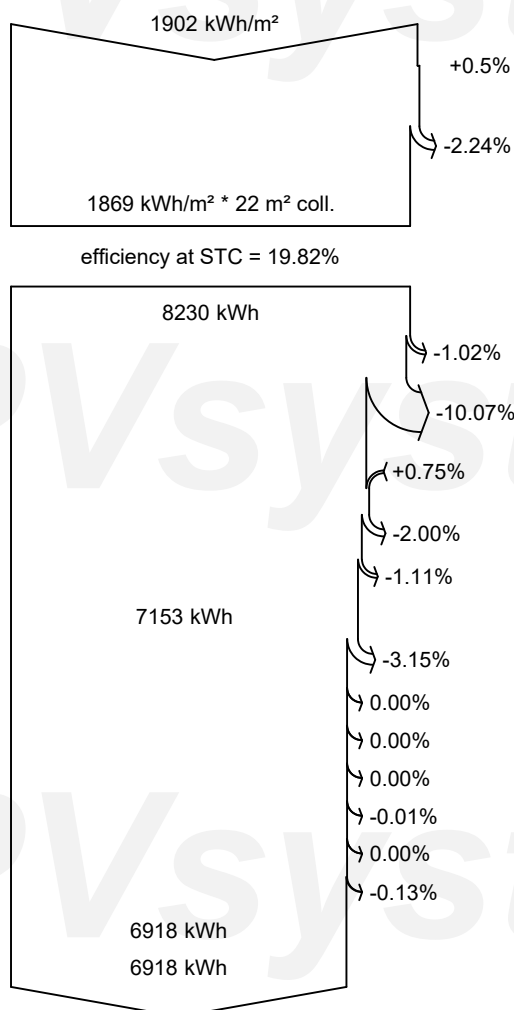
PR Performance Ratio



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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 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

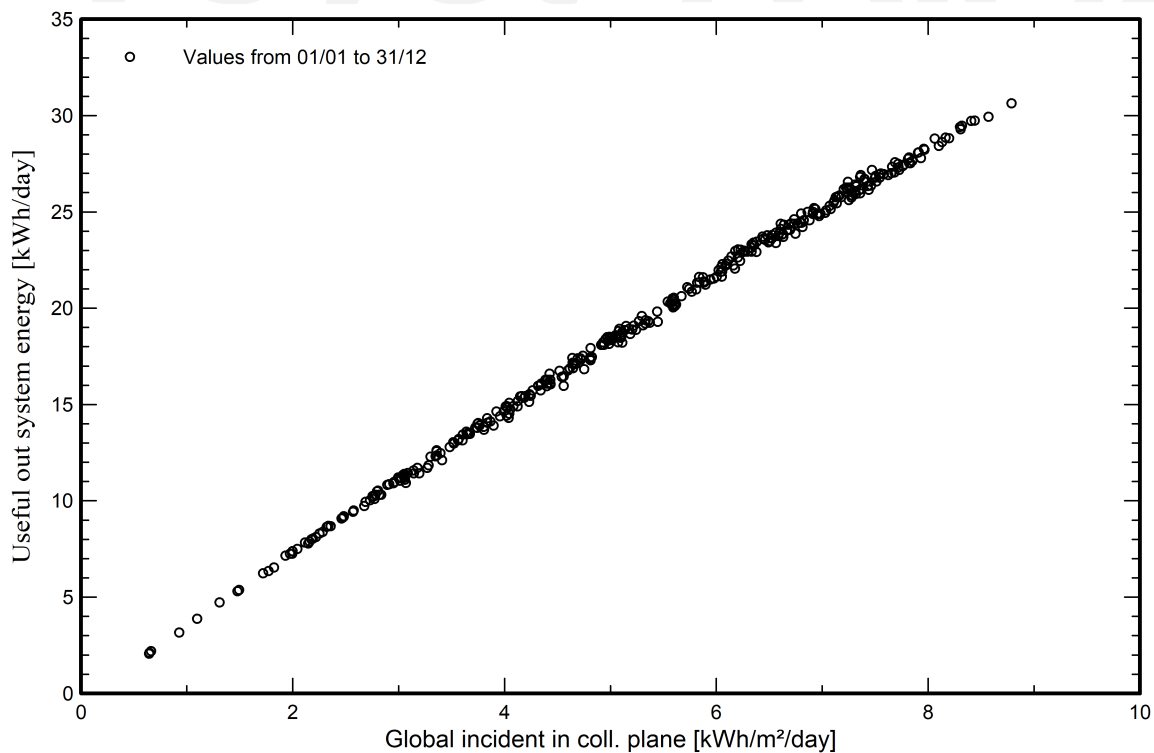


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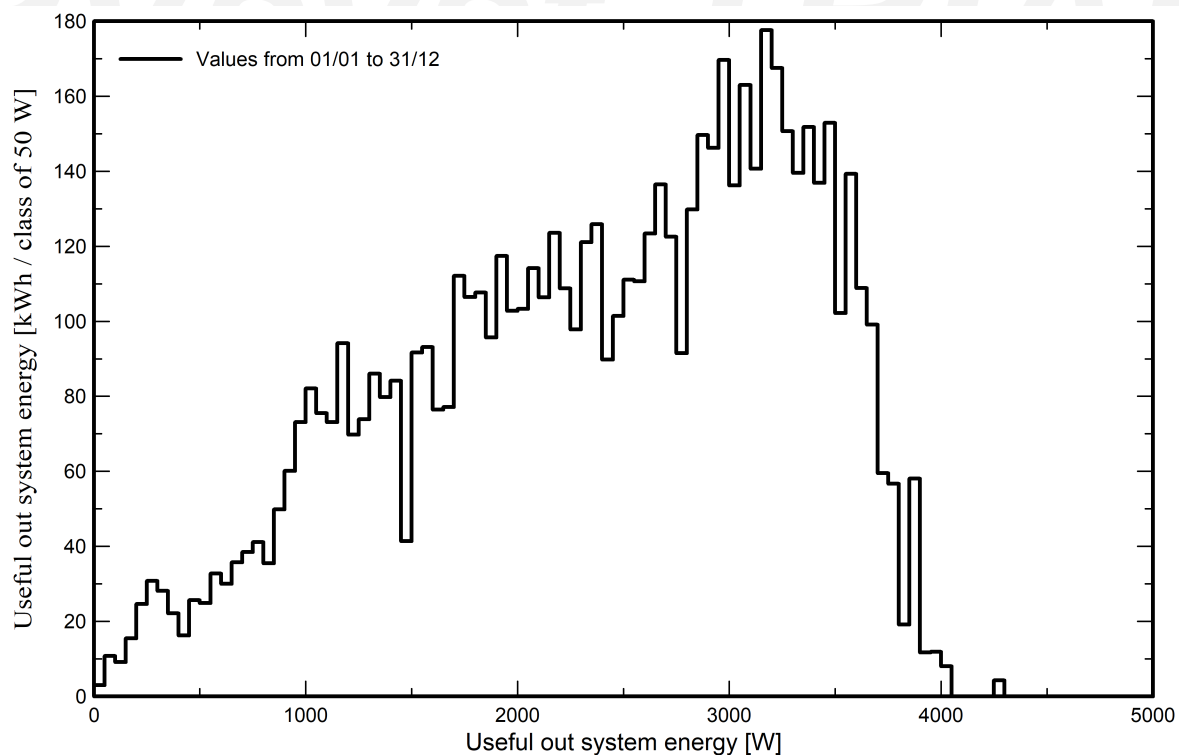
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Predef. graphs

Diagrama entrada/salida diaria



Distribución de potencia de salida del sistema

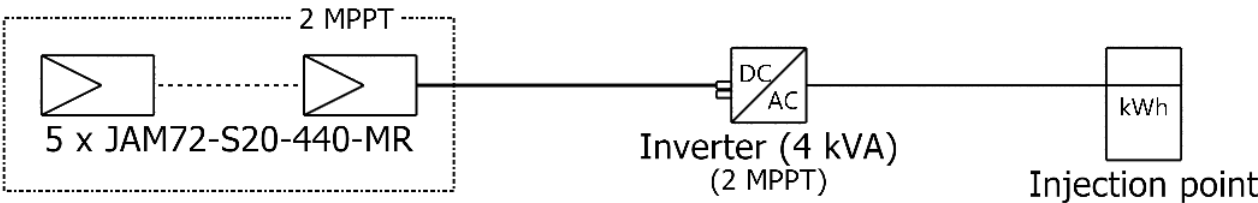




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Single-line diagram



PV module	JAM72-S20-440-MR
Inverter	SUN2000-4KTL-L1
String	5 x JAM72-S20-440-MR

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