PVSYST
PHOTOVOLTAIC SOFTWARE

PVsyst TRIAL

PVsyst - Simulation report

Grid-Connected System

Project: Meteo_TG_METEONORM

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 11.05 MWp

Nuevo Horizonte - Colombia

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Author

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PVsyst V8.0.6
VC0, Simulation date:
21/01/25 22:29
with V8.0.6

Project summary

Geographical Site
Nuevo Horizonte
Colombia

Situation

Latitude	7.89 °N
Longitude	-72.56 °W
Altitude	239 m
Time zone	UTC-5

Project settings
Albedo 0.20

Weather data
Nuevo Horizonte
Meteonorm 8.2 (2016-2021), Sat=100% - Sintético

System summary

Grid-Connected System
No 3D scene defined, no shadings

Orientation #1
Fixed plane
Tilt/Azimuth 20 / 0 °

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

System information

PV Array		Inverters	
Nb. of modules	15680 units	Nb. of units	35 units
Pnom total	11.05 MWp	Pnom total	10.50 MWac
		Pnom ratio	1.053

Results summary

Produced Energy	15768 MWh/year	Specific production	1426 kWh/kWp/year	Perf. Ratio PR	83.16 %

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General parameters

Grid-Connected System — No 3D scene defined, no shadings

Orientation #1
Fixed plane
Tilt/Azimuth 20 / 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	Generic
Model	DS705
(Custom parameters definition)	
Unit Nom. Power	705 Wp
Number of PV modules	15680 units
Nominal (STC)	11.05 MWp
Modules	560 string x 28 In series
At operating cond. (50°C)	
Pmpp	10.34 MWp
U mpp	1046 V
I mpp	9891 A

Inverter

Manufacturer	Generic
Model	SUN2000-330KTL-H1
(Custom parameters definition)	
Unit Nom. Power	300 kWac
Number of inverters	35 units
Total power	10500 kWac
Operating voltage	500-1500 V
Max. power (=>30°C)	350 kWac
Pnom ratio (DC:AC)	1.05
Power sharing within this inverter	

Total PV power

Nominal (STC)	11054 kWp
Total	15680 modules
Module area	48708 m²

Total inverter power

Total power	10500 kWac
Max. power	12250 kWac
Number of inverters	35 units
Pnom ratio	1.05

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. 1.7 mΩ
Loss Fraction 1.5 % at STC

Module Quality Loss
Loss Fraction 2.0 %

Module mismatch losses
Loss Fraction 2.0 % at MPP

Strings Mismatch loss
Loss Fraction 0.1 %

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

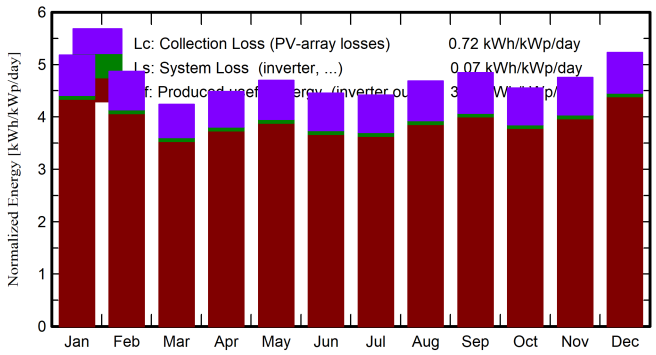
0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.998	0.981	0.948	0.862	0.776	0.636	0.402	0.000

Main results

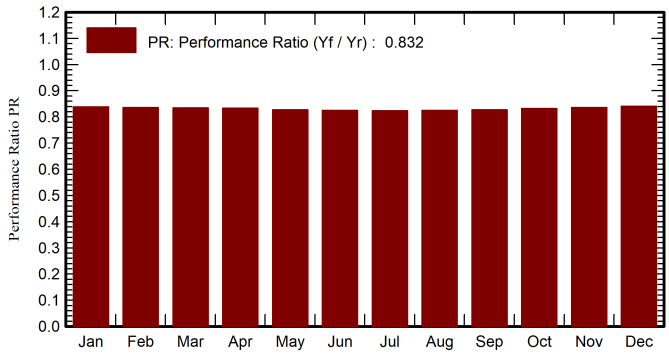
System Production

Produced Energy	15768 MWh/year	Specific production	1426 kWh/kWp/year
		Perf. Ratio PR	83.16 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	PR ratio
January	143.6	68.32	26.56	160.6	157.0	1513	1489	0.839
February	127.6	65.70	26.83	136.3	133.0	1281	1259	0.836
March	132.3	81.00	27.30	131.5	127.6	1238	1213	0.835
April	142.4	85.58	27.31	134.5	130.0	1264	1240	0.834
May	164.1	79.34	28.48	145.6	140.1	1356	1331	0.827
June	155.3	75.22	28.40	133.5	128.0	1243	1218	0.825
July	156.0	82.81	28.98	136.8	131.2	1272	1246	0.824
August	158.3	81.29	29.57	145.2	139.9	1349	1323	0.824
September	148.2	76.47	29.31	145.3	140.9	1352	1328	0.827
October	136.7	81.05	28.61	141.2	137.1	1321	1298	0.832
November	130.3	68.33	27.02	142.6	138.8	1340	1317	0.836
December	142.1	70.14	26.90	162.1	158.4	1529	1505	0.840
Year	1736.8	915.25	27.95	1715.3	1662.1	16058	15768	0.832

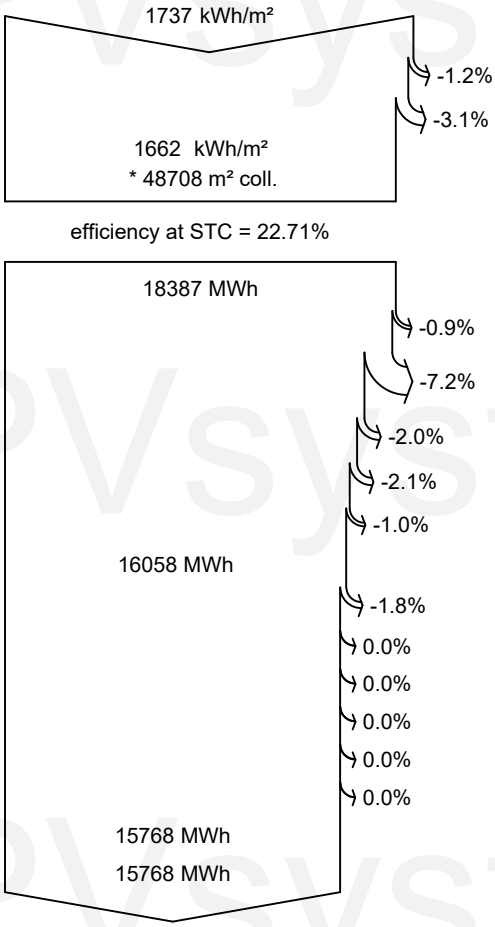
Legends

GlobHor	Global horizontal irradiation	EArray	Effective energy at the output of the array
DiffHor	Horizontal diffuse irradiation	E_Grid	Energy injected into grid
T_Amb	Ambient Temperature	PR	Performance Ratio
GlobInc	Global incident in coll. plane		
GlobEff	Effective Global, corr. for IAM and shadings		

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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

Mismatch loss, modules and strings

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

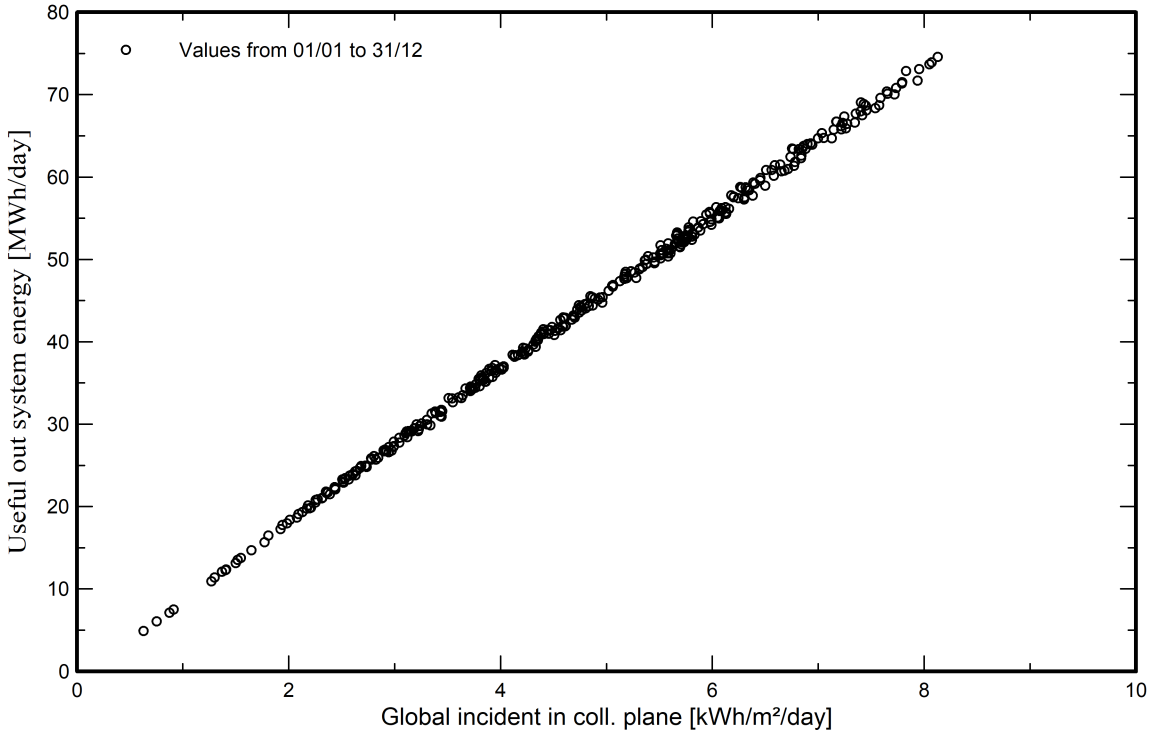
Available Energy at Inverter Output

Energy injected into grid

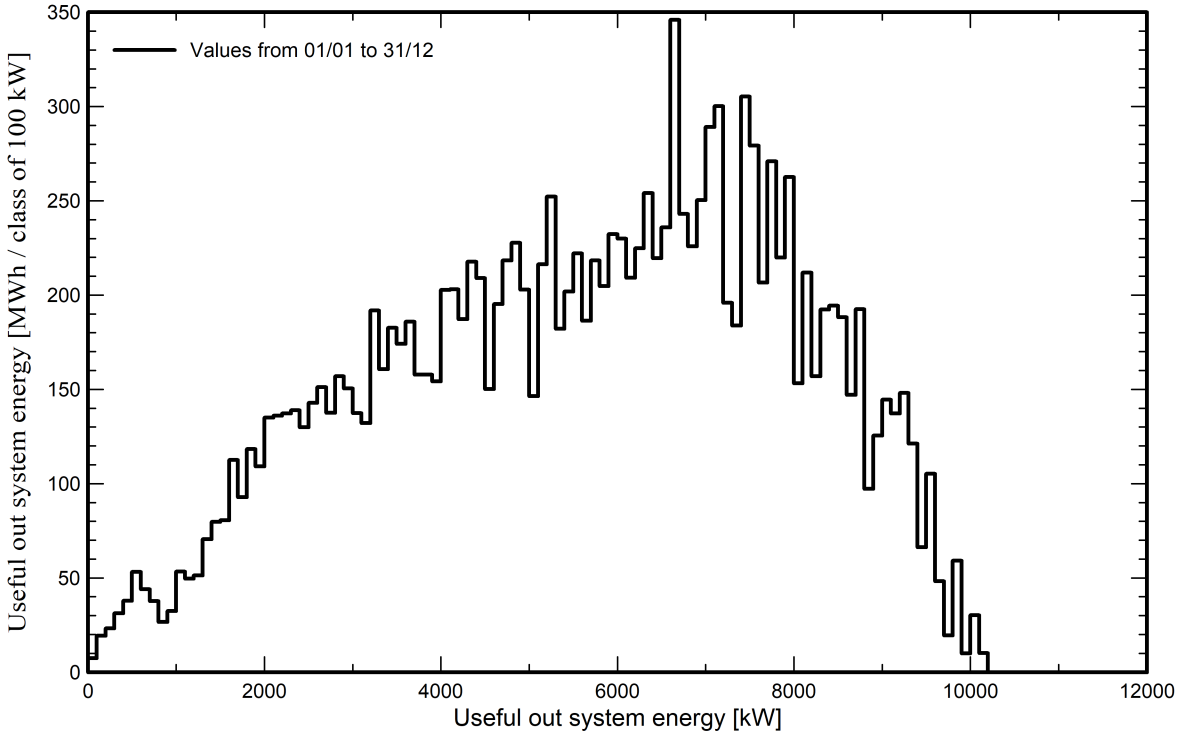
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Predef. graphs

Diagrama entrada/salida diaria

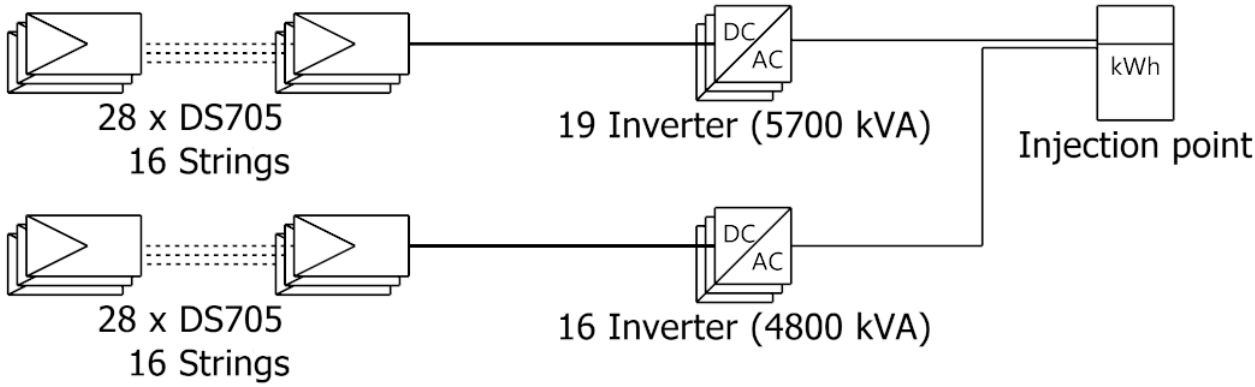


Distribución de potencia de salida del sistema



Single-line diagram

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PV module	DS705
Inverter	SUN2000-330KTL-H1
String	28 x DS705

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