PVsyst - Simulation report

Grid-Connected System

Project: Parque Nuquí

Variant: Nueva variante de simulación

No 3D scene defined, no shadings

System power: 3993 kWp

Tibugá - Colombia

Author

PVsyst TRIAL

PVsyst V8.0.9
VC0, Simulation date:
24/04/25 18:56
with V8.0.9

Project summary

Geographical Site
Tibugá
Colombia

Situation

Latitude	5.76 °(N)
Longitude	-77.25 °(W)
Altitude	14 m
Time zone	UTC-5

Project settings
Albedo 0.20

Weather data
Tibugá
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 5 / -90 °

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

System information

PV Array		Inverters	
Nb. of modules	6600 units	Nb. of units	18 units
Pnom total	3993 kWp	Total power	3150 kWac
		Pnom ratio	1.27

Results summary

Produced Energy	5338.1 MWh/year	Specific production	1337 kWh/kWp/year	Perf. Ratio PR	84.80 %

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General parameters

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

Orientation #1
Fixed plane
Tilt/Azimuth 5 / -90 °

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	JAM78-S30-605-MR
(Original PVsyst database)	
Unit Nom. Power	605 Wp
Number of PV modules	6600 units
Nominal (STC)	3993 kWp
Modules	264 string x 25 In series
At operating cond. (50°C)	
Pmpp	3646 kWp
U mpp	1022 V
I mpp	3569 A

Inverter

Manufacturer	Generic
Model	SUN2000-175KTL-H0
(Original PVsyst database)	
Unit Nom. Power	175 kWac
Number of inverters	18 units
Total power	3150 kWac
Operating voltage	600-1500 V
Max. power (=>25°C)	193 kWac
Pnom ratio (DC:AC)	1.27
Power sharing within this inverter	

Total PV power

Nominal (STC)	3993 kWp
Total	6600 modules
Module area	18449 m²

Total inverter power

Total power	3150 kWac
Max. power	3474 kWac
Number of inverters	18 units
Pnom ratio	1.27

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. 4.8 mΩ
Loss Fraction 1.5 % at STC

Module Quality Loss
Loss Fraction -0.8 %

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

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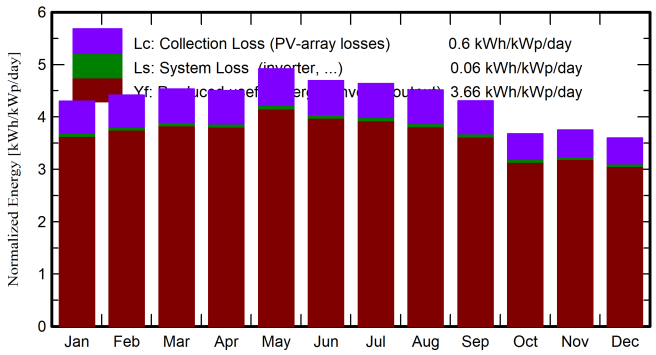
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Main results

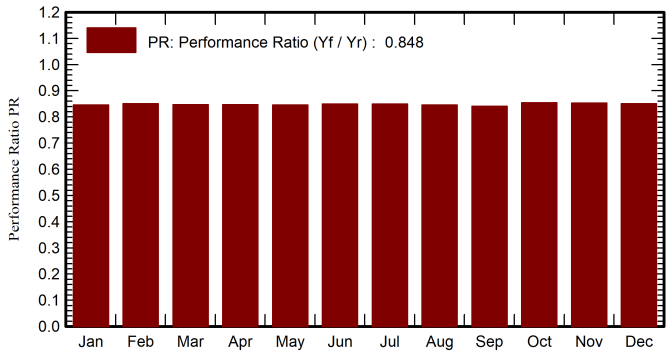
System Production

Produced Energy	5338.1 MWh/year	Specific production	1337 kWh/kWp/year
		Perf. Ratio PR	84.80 %

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	133.8	72.15	23.79	133.3	128.4	457.5	450.1	0.846
February	123.6	80.60	24.02	123.6	119.2	426.5	419.8	0.851
March	141.3	82.48	23.94	140.6	136.0	482.9	475.1	0.846
April	134.5	77.62	23.27	135.0	130.9	464.2	456.6	0.847
May	153.2	74.75	23.49	152.5	147.4	523.4	514.9	0.846
June	141.0	75.80	23.44	140.7	135.9	485.3	477.5	0.850
July	144.3	81.81	24.10	143.7	139.1	494.9	486.9	0.849
August	140.4	81.76	24.08	139.9	135.4	480.3	472.5	0.846
September	129.5	68.82	23.37	129.3	125.5	441.4	434.0	0.841
October	114.3	79.65	23.10	114.0	109.7	395.2	388.9	0.855
November	112.2	69.45	22.76	112.5	108.4	389.1	382.8	0.852
December	112.2	69.03	23.28	111.6	107.3	385.3	379.1	0.851
Year	1580.3	913.92	23.55	1576.5	1523.4	5426.0	5338.1	0.848

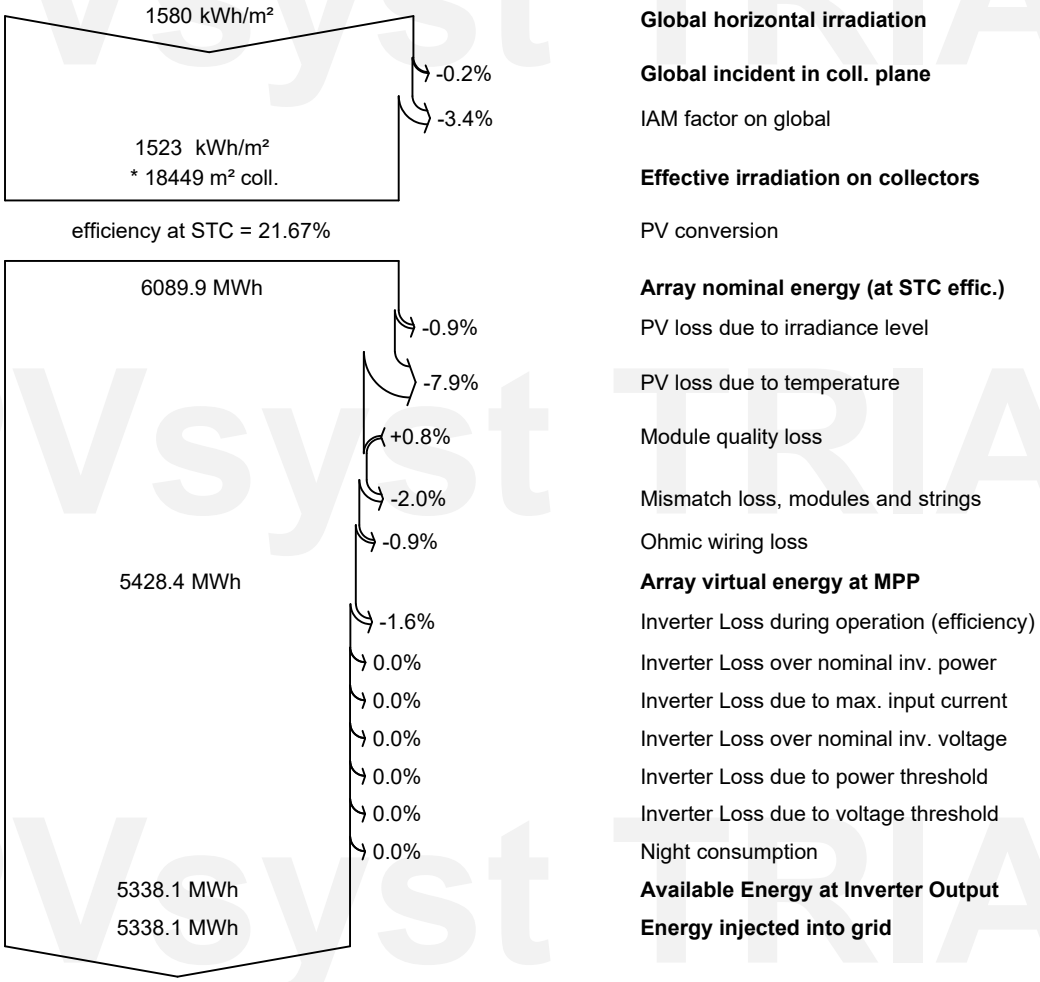
Legends

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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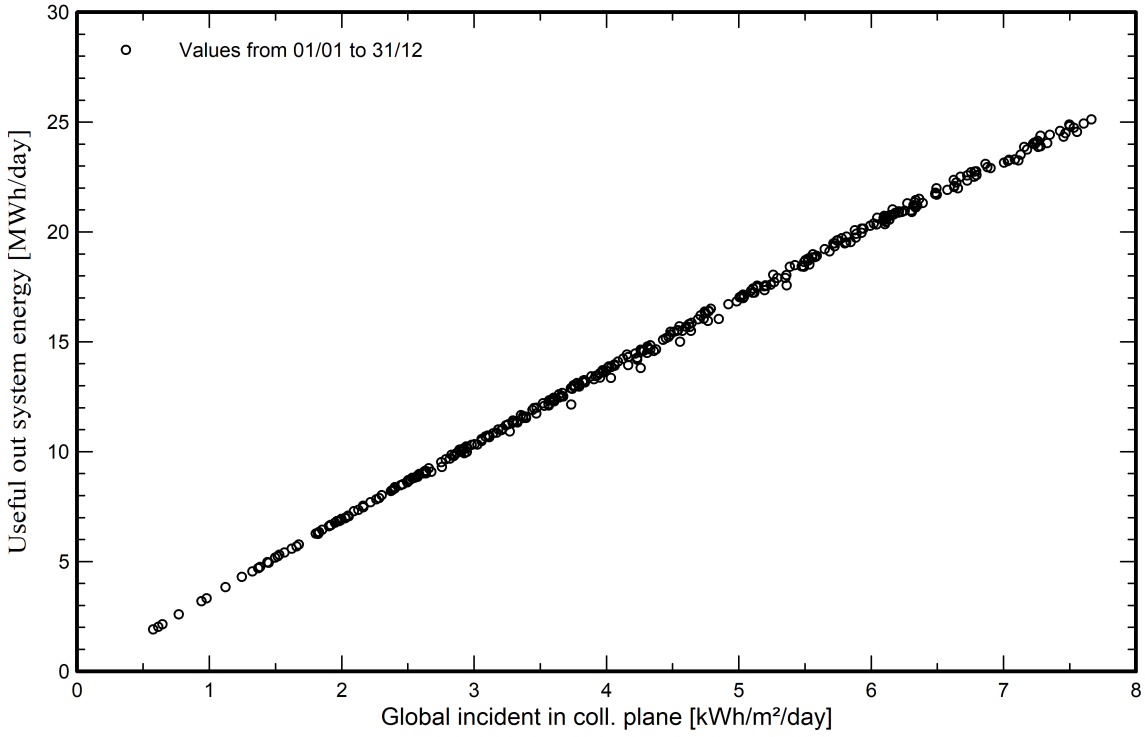
Loss diagram



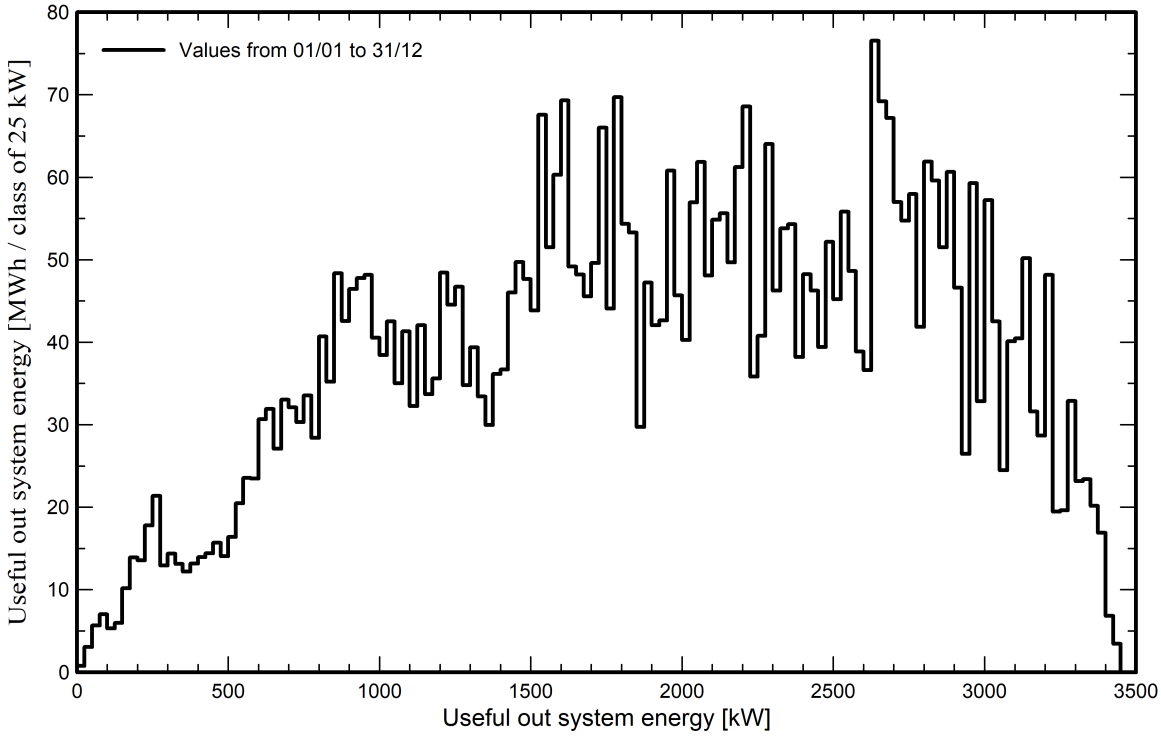
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Predef. graphs

Diagrama entrada/salida diaria

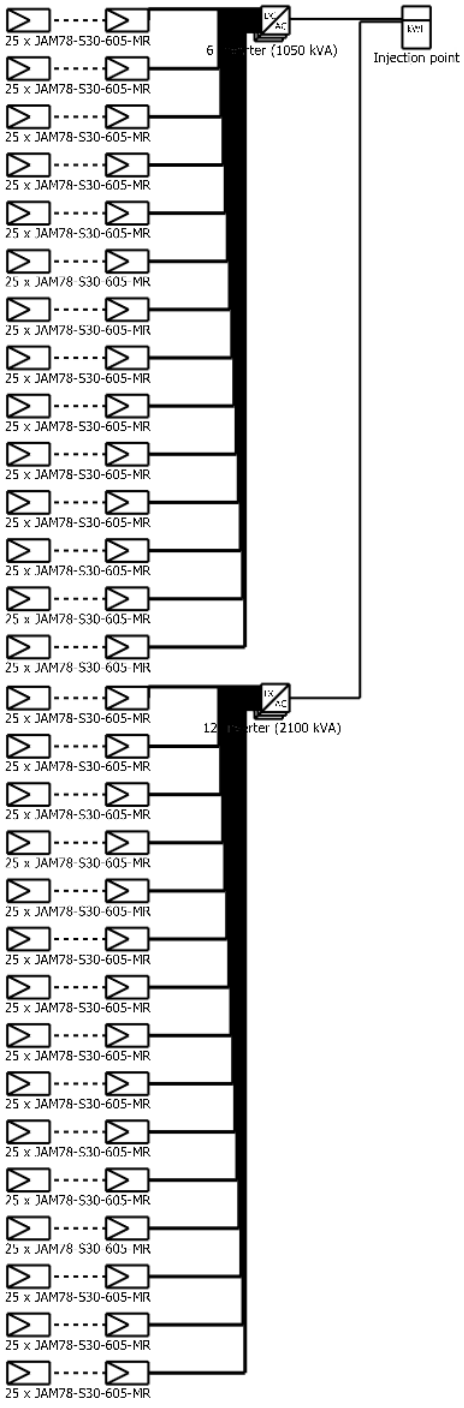


Distribución de potencia de salida del sistema



Single-line diagram

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PV module	JAM78-S30-605-MR
Inverter	SUN2000-175KTL-H0
String	25 x JAM78-S30-605-MR

	Parque Nuquí	
	VC0 : Nueva variante de simulación	24/04/25