Version 7.3.1

PVsyst - Simulation report

Grid-Connected System

Project: On_Grid_home

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 4200 Wp

Home - India

Author

PVsyst V7.3.1
VC0, Simulation date:
02/07/24 23:44
with v7.3.1

Project summary

Geographical Site
Home
India

Situation

Latitude	26.76 °N
Longitude	83.40 °E
Altitude	78 m
Time zone	UTC+5.5

Project settings

Albedo	0.20

Meteo data
Home
Meteonorm 8.1 (1996-2015), Sat=100% - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation
Fixed plane
Tilt/Azimuth 22 / 0 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	14 units
Pnom total	4200 Wp

Inverters

Nb. of units	1 unit
Pnom total	4000 W
Pnom ratio	1.050

Results summary

Produced Energy	5344 kWh/year	Specific production	1272 kWh/kWp/year	Perf. Ratio PR	79.36 %

Table of contents

General parameters

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

PV Field Orientation

Orientation		Sheds configuration	Models used	
Fixed plane		No 3D scene defined	Transposition	Perez
Tilt/Azimuth	22 / 0 °		Diffuse	Perez, Meteonorm
			Circumsolar	separate

Horizon
Free Horizon

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer	Vikram Solar
Model	Somera VSM.60.300.05
(Original PVsyst database)	
Unit Nom. Power	300 Wp
Number of PV modules	14 units
Nominal (STC)	4200 Wp
Modules	2 Strings x 7 In series
At operating cond. (50°C)	
Pmpp	3793 Wp
U mpp	207 V
I mpp	18 A

Inverter

Manufacturer	Huawei Technologies
Model	SUN2000-4KTL-M1-400V
(Original PVsyst database)	
Unit Nom. Power	4.00 kWac
Number of inverters	2 * MPPT 50% 1 unit
Total power	4.0 kWac
Operating voltage	140-980 V
Max. power (=>50°C)	4.40 kWac
Pnom ratio (DC:AC)	1.05
No Power sharing between MPPTs	

Total PV power

Nominal (STC)	4.20 kWp
Total	14 modules
Module area	22.8 m²

Total inverter power

Total power	4 kWac
Number of inverters	1 unit
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. 189 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

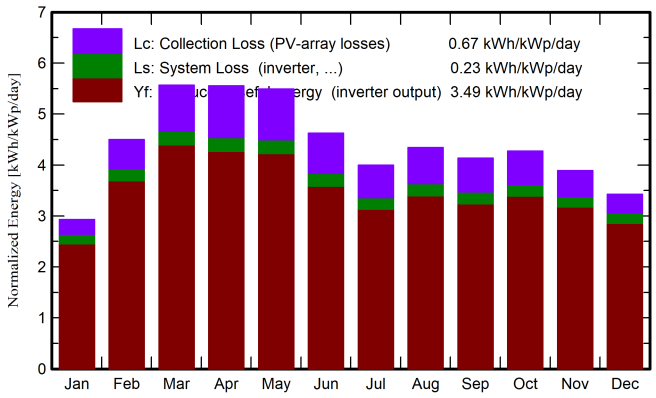
0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.998	0.981	0.948	0.862	0.776	0.636	0.403	0.000

Main results

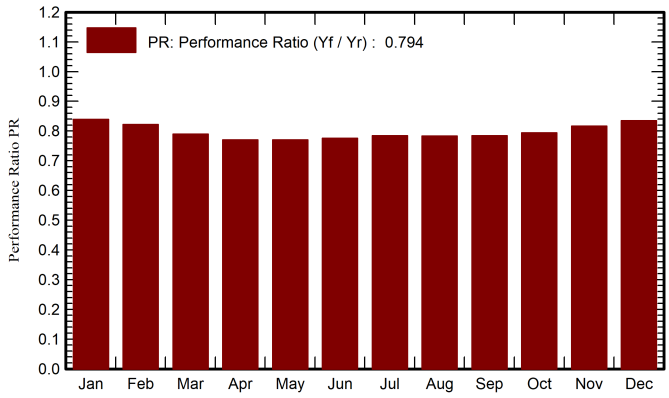
System Production

Produced Energy	5344 kWh/year	Specific production	1272 kWh/kWp/year
		Performance Ratio PR	79.36 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

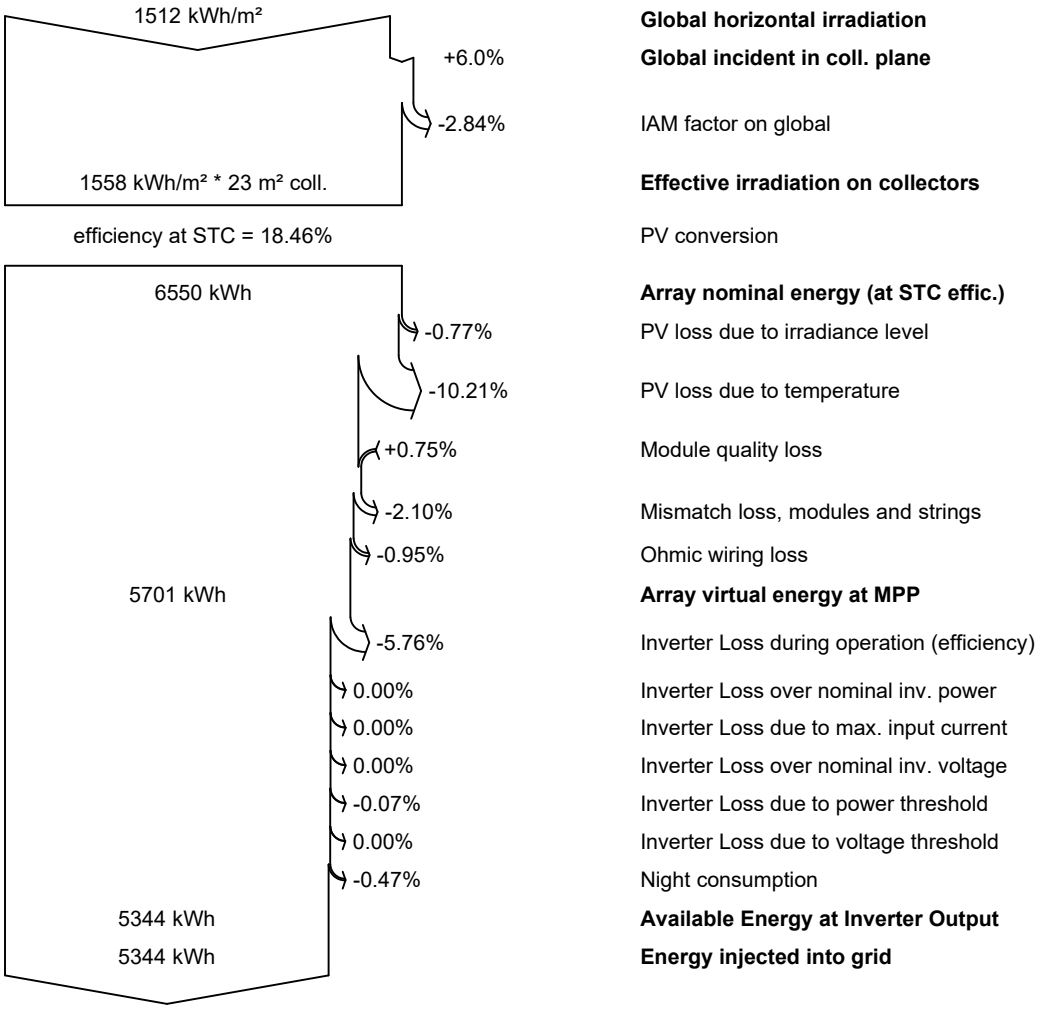
	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	PR ratio
January	76.6	52.3	14.43	90.9	88.1	344.4	320.5	0.839
February	107.6	60.1	19.20	126.0	122.8	462.0	434.7	0.822
March	156.7	76.1	24.80	172.7	168.5	607.5	572.6	0.790
April	163.4	86.4	29.56	166.6	162.1	572.2	538.6	0.770
May	176.5	102.1	31.30	170.3	165.4	585.9	550.7	0.770
June	147.1	96.5	30.82	138.7	134.3	483.5	451.9	0.776
July	130.8	92.0	29.61	123.9	119.6	438.1	408.2	0.785
August	136.2	89.8	29.41	134.7	130.4	473.5	442.9	0.783
September	118.0	73.3	28.43	124.1	120.4	437.6	408.9	0.784
October	117.8	70.8	26.24	132.4	128.8	471.2	441.7	0.794
November	96.5	57.2	21.01	116.8	113.8	427.2	400.6	0.817
December	85.0	50.8	16.40	106.3	103.4	398.2	372.5	0.835
Year	1512.3	907.3	25.12	1603.2	1557.6	5701.4	5343.8	0.794

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

PVsyst V7.3.1
VC0, Simulation date:
02/07/24 23:44
with v7.3.1

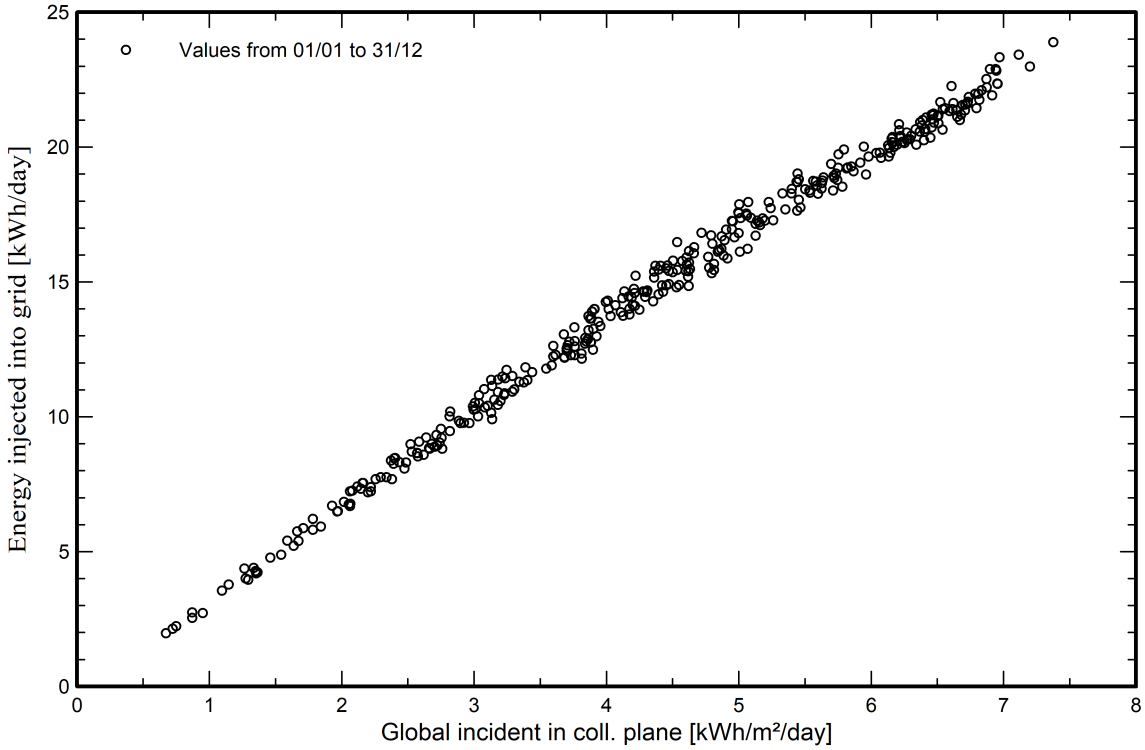
Loss diagram



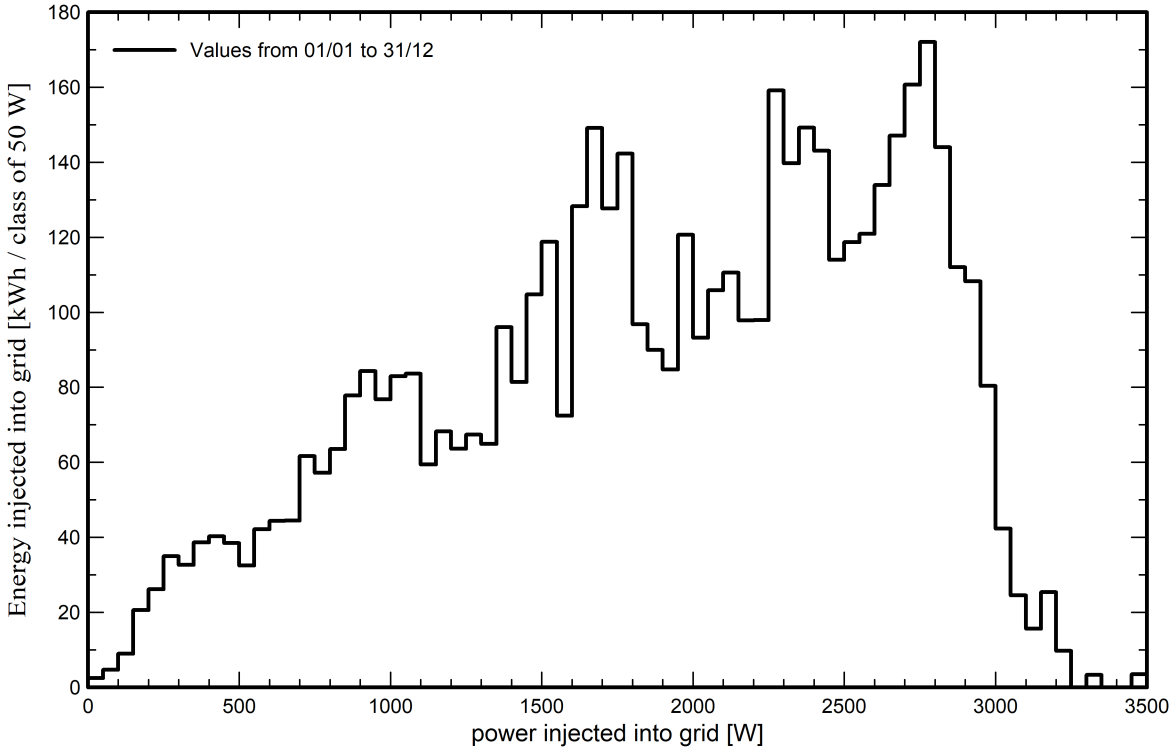
PVsyst V7.3.1
VC0, Simulation date:
02/07/24 23:44
with v7.3.1

Predef. graphs

Daily Input/Output diagram

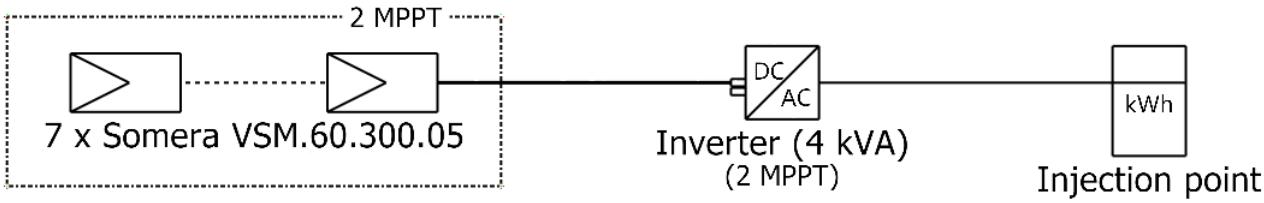


System Output Power Distribution



Single-line diagram

PVsyst V7.3.1
VC0, Simulation date:
02/07/24 23:44
with v7.3.1



PV module	Somera VSM.60.300.05
Inverter	SUN2000-4KTL-M1-400V
String	7 x Somera VSM.60.300.05

	On_Grid_home	
	VC0 : New simulation variant	02/07/24