Version 7.2.3

PVsyst - Simulation report

Grid-Connected System

Project: Arunabha

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 99.0 kWp

Delhi/Safdarjung - India

Author

PVsyst V7.2.3
VC1, Simulation date:
04/07/21 00:43
with v7.2.3

Project summary

Geographical Site
Delhi/Safdarjung
India

Situation

Latitude	28.58 °N
Longitude	77.20 °E
Altitude	212 m
Time zone	UTC+6

Project settings
Albedo 0.20

Meteo data
Delhi/Safdarjung
Meteonorm 8.0 (1981-2010) - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation
Fixed plane
Tilt/Azimuth 30 / 0 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	330 units
Pnom total	99.0 kWp

Inverters

Nb. of units	1.3 units
Pnom total	75.0 kWac
Pnom ratio	1.320

Results summary

Produced Energy	163.5 MWh/year	Specific production	1651 kWh/kWp/year	Perf. Ratio PR	82.57 %

Table of contents

PVsyst V7.2.3
VC1, Simulation date:
04/07/21 00:43
with v7.2.3

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	30 / 0 °		Diffuse	Perez, Meteonorm
			Circumsolar	separate

Horizon	Near Shadings	User's needs
Free Horizon	No Shadings	Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer	Generic
Model	Mono 300 Wp 60 cells
(Original PVsyst database)	
Unit Nom. Power	300 Wp
Number of PV modules	330 units
Nominal (STC)	99.0 kWp
Modules	10 Strings x 33 In series
At operating cond. (50°C)	
Pmpp	89.1 kWp
U mpp	938 V
I mpp	95 A

Inverter

Manufacturer	Generic
Model	60 kWac string inverter
(Original PVsyst database)	
Unit Nom. Power	60.0 kWac
Number of inverters	10 * MPPT 13% 1.3 units
Total power	75.0 kWac
Operating voltage	500-1450 V
Pnom ratio (DC:AC)	1.32

Total PV power

Nominal (STC)	99 kWp
Total	330 modules
Module area	537 m²
Cell area	469 m²

Total inverter power

Total power	75 kWac
Nb. of inverters	2 Unit
	0.8 unused
Pnom ratio	1.32

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.	166 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 AR coating, n(glass)=1.526, n(AR)=1.290

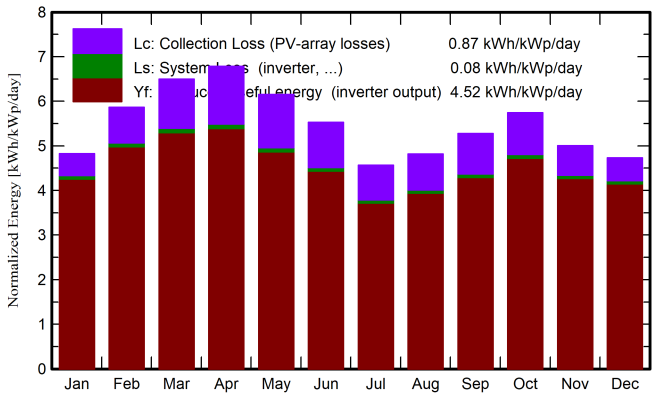
0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	0.999	0.987	0.962	0.892	0.816	0.681	0.440	0.000

Main results

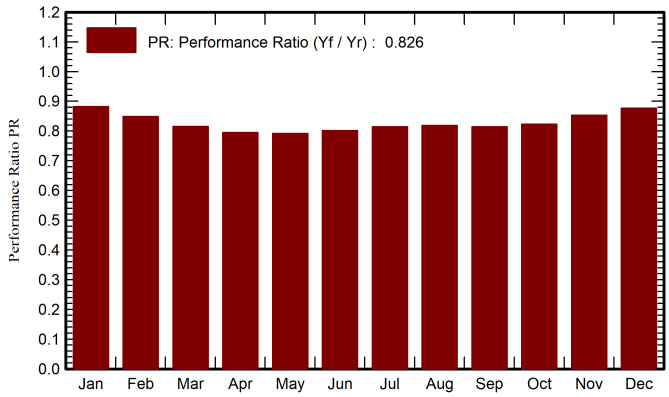
System Production

Produced Energy	163.5 MWh/year	Specific production	1651 kWh/kWp/year
		Performance Ratio PR	82.57 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

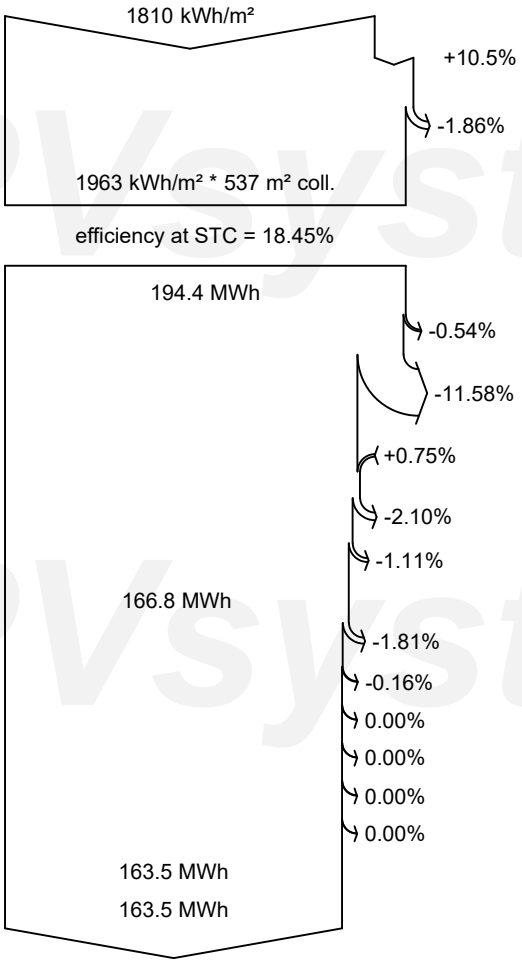
	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray MWh	E_Grid MWh	PR ratio
January	106.6	47.5	12.95	149.7	147.4	13.30	13.07	0.882
February	126.6	47.4	17.24	164.2	161.9	14.06	13.81	0.849
March	174.8	63.8	23.59	201.5	198.4	16.57	16.26	0.815
April	198.5	76.8	29.49	203.5	199.4	16.32	16.02	0.795
May	203.7	99.0	33.22	190.8	186.6	15.23	14.95	0.791
June	182.9	104.8	33.02	166.0	162.1	13.43	13.18	0.802
July	154.4	97.4	31.49	141.7	138.1	11.64	11.42	0.814
August	154.3	94.8	30.54	149.3	145.6	12.32	12.10	0.818
September	148.5	77.2	29.10	158.3	155.0	13.00	12.76	0.815
October	146.9	67.8	26.10	178.1	175.3	14.76	14.50	0.822
November	111.5	51.5	19.68	150.1	148.1	12.92	12.69	0.853
December	101.8	44.3	14.58	146.8	144.9	12.97	12.74	0.877
Year	1810.5	872.2	25.12	2000.0	1962.8	166.51	163.49	0.826

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 V7.2.3
VC1, Simulation date:
04/07/21 00:43
with v7.2.3

Loss diagram

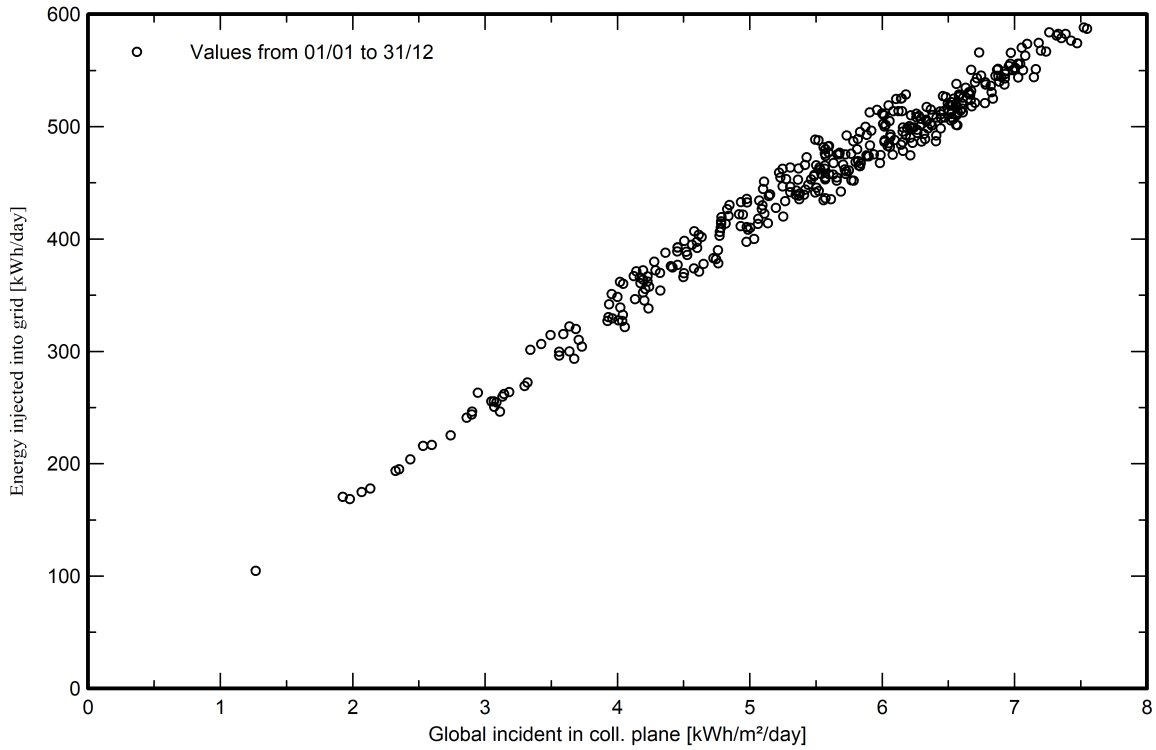


Global horizontal irradiation
Global incident in coll. plane
IAM factor on global
Effective irradiation on collectors
PV conversion
Array nominal energy (at STC effic.)
PV loss due to irradiance level
PV loss due to temperature
Module quality loss
Mismatch loss, modules and strings
Ohmic wiring loss
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

PVsyst V7.2.3
VC1, Simulation date:
04/07/21 00:43
with v7.2.3

Special graphs

Daily Input/Output diagram



System Output Power Distribution