PVSYST
PHOTOVOLTAIC SOFTWARE

PVsyst - Simulation report

Grid-Connected System

Project: First Project

Variant: My_First_Simulation

No 3D scene defined, no shadings

System power: 9.00 kWp

Nagpur/Dhantoli - India

Author

PVsyst V8.0.7
VC0, Simulation date:
27/02/25 16:30
with V8.0.7

Project summary

Geographical Site
Nagpur/Dhantoli
India

Situation

Latitude	21.09 °N
Longitude	79.05 °E
Altitude	313 m
Time zone	UTC+6

Project settings

Albedo	0.20

Weather data
Nagpur/Dhantoli
MeteoNorm 8.2 station - Synthetic

System summary

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

Orientation #1
Fixed plane
Tilt/Azimuth 25 / 20 °

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

System information

PV Array		Inverters	
Nb. of modules	30 units	Nb. of units	3 units
Pnom total	9.00 kWp	Pnom total	9.00 kWac
		Pnom ratio	1.000

Results summary

Produced Energy	13412 kWh/year	Specific production	1490 kWh/kWp/year	Perf. Ratio PR	80.32 %

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General parameters

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

Orientation #1
Fixed plane
Tilt/Azimuth 25 / 20 °

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	Mono 300 Wp 60 cells
(Original PVsyst database)	
Unit Nom. Power	300 Wp
Number of PV modules	30 units
Nominal (STC)	9.00 kWp
Modules	3 string x 10 In series
At operating cond. (50°C)	
Pmpp	8.10 kWp
U mpp	284 V
I mpp	28 A

Inverter

Manufacturer	Generic
Model	3 kWac inverter
(Original PVsyst database)	
Unit Nom. Power	3.00 kWac
Number of inverters	3 units
Total power	9.0 kWac
Operating voltage	125-440 V
Pnom ratio (DC:AC)	1.00

Total PV power

Nominal (STC)	9 kWp
Total	30 modules
Module area	48.8 m²
Cell area	42.7 m²

Total inverter power

Total power	9 kWac
Number of inverters	3 units
Pnom ratio	1.00

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. 168 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): 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	0.963	0.892	0.814	0.679	0.438	0.000

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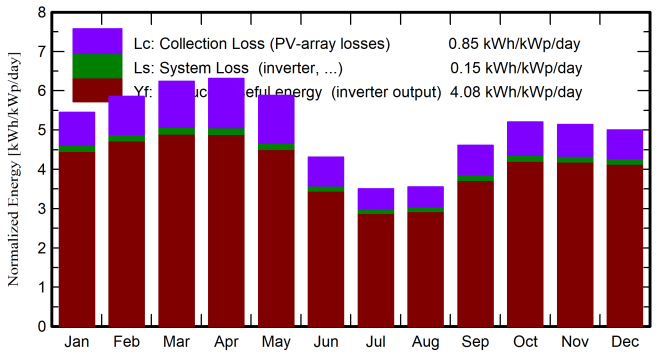
Main results

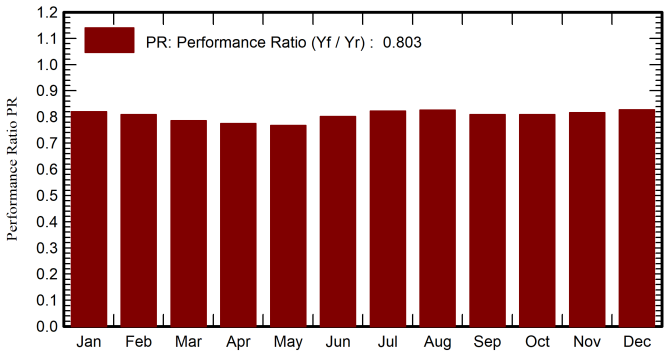
System Production

Produced Energy	13412 kWh/year	Specific production	1490 kWh/kWp/year
		Perf. Ratio PR	80.32 %

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	134.5	54.10	22.30	168.9	166.0	1288	1246	0.819
February	139.5	60.40	25.20	164.0	161.3	1234	1193	0.808
March	179.9	73.90	29.40	193.5	190.2	1416	1368	0.785
April	192.6	81.20	32.50	189.5	185.7	1368	1322	0.775
May	196.8	93.60	35.60	182.2	177.8	1304	1259	0.768
June	144.1	91.10	31.20	129.3	125.7	968	932	0.801
July	119.8	74.20	28.10	108.7	105.6	837	805	0.823
August	115.5	79.60	27.30	110.2	107.3	852	819	0.826
September	135.6	76.30	27.30	138.3	135.2	1043	1006	0.808
October	144.5	72.60	26.90	161.5	158.3	1217	1176	0.809
November	125.8	54.10	24.00	154.2	151.5	1173	1132	0.816
December	121.2	49.00	20.79	155.1	152.7	1195	1154	0.827
Year	1749.8	860.10	27.56	1855.3	1817.4	13895	13412	0.803

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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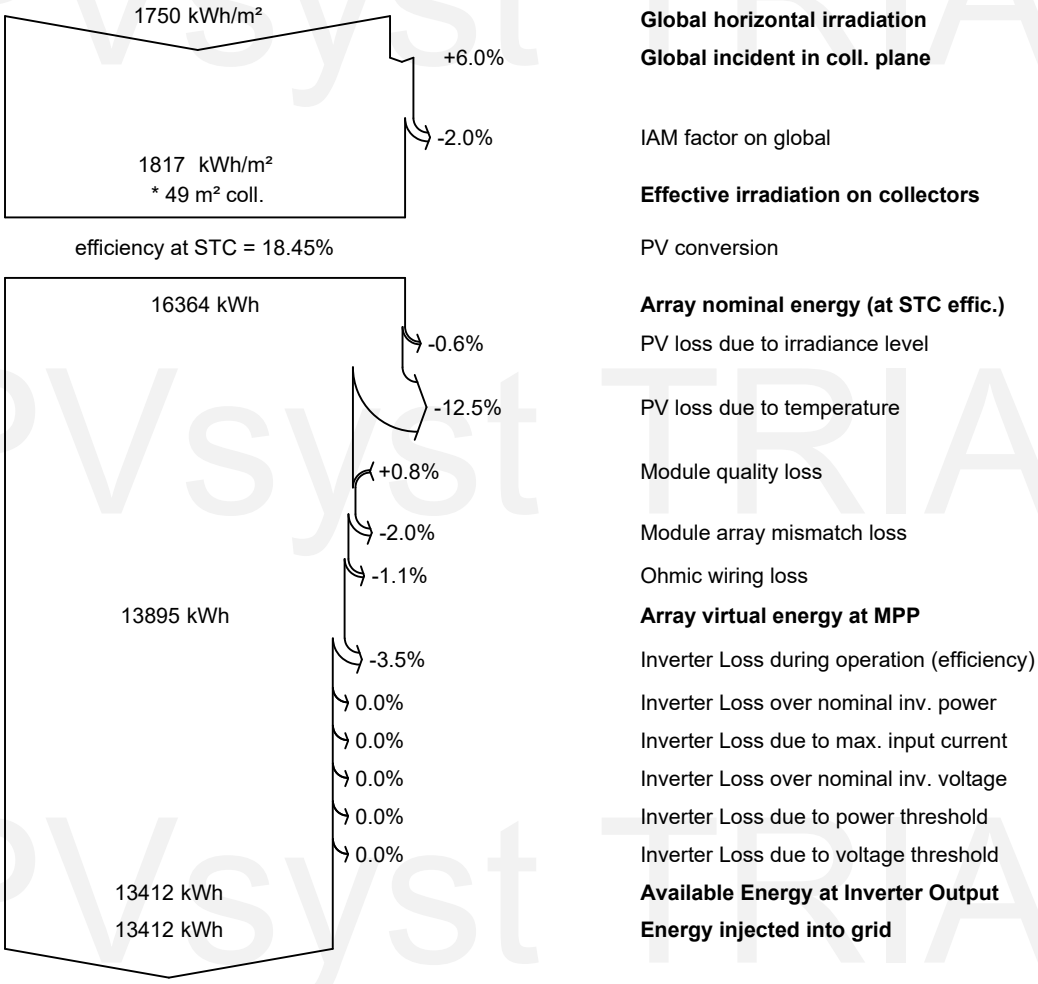
Loss diagram



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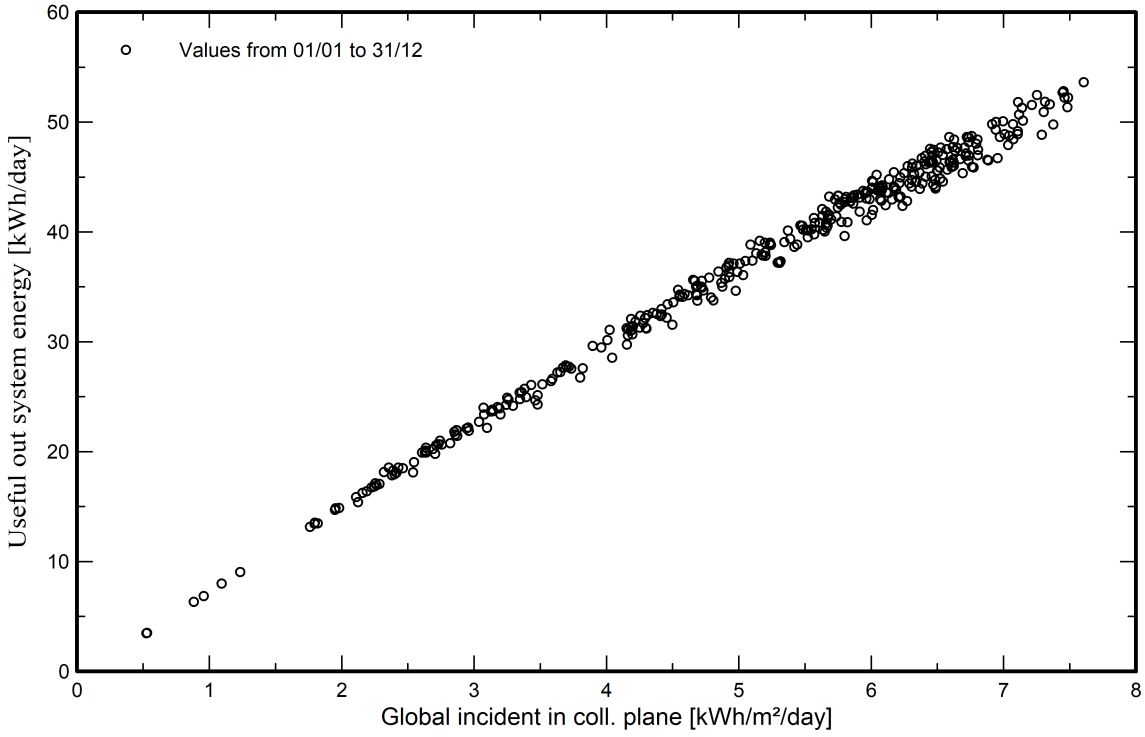
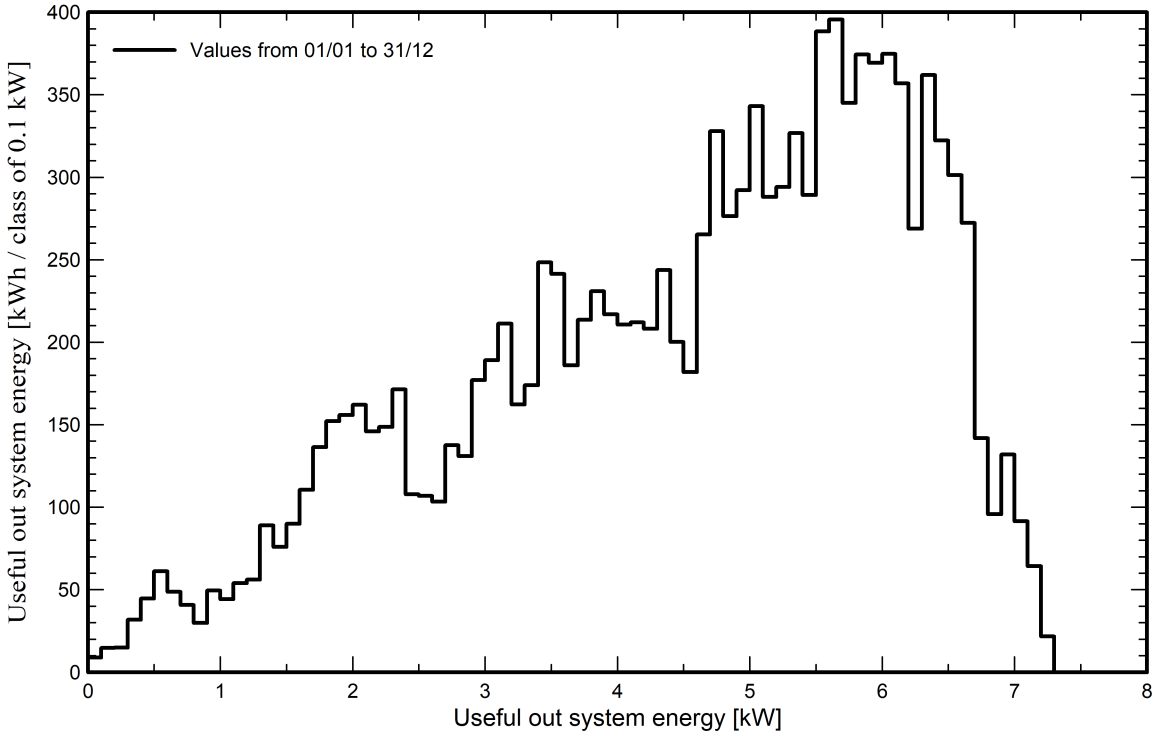
Predef. graphs

Daily Input/Output diagram



System Output Power Distribution



Single-line diagram

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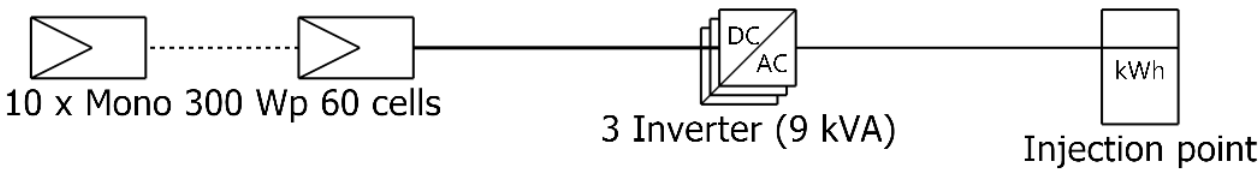

PV module	Mono 300 Wp 60 cells
Inverter	3 kWac inverter
String	10 x Mono 300 Wp 60 cells

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