Version 7.4.8

PVsyst - Simulation report

Grid-Connected System

Project: Orai_Project

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 9.00 kWp

School_Orai - India

Author

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Project summary

Geographical Site
School_Orai
India

Situation

Latitude	25.97 °N
Longitude	79.43 °E
Altitude	137 m
Time zone	UTC+5.5

Project settings

Albedo	0.20

Weather data
School_Orai
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 25 / 0 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	30 units
Pnom total	9.00 kWp

Inverters

Nb. of units	1 unit
Pnom total	9.00 kWac
Pnom ratio	1.000

Results summary

Produced Energy	13014.57 kWh/year	Specific production	1446 kWh/kWp/year	Perf. Ratio PR	82.78 %

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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 25 / 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 (Original PVsyst database)	Mono 300 Wp 60 cells
Unit Nom. Power	300 Wp
Number of PV modules	30 units
Nominal (STC)	9.00 kWp
Modules	2 string x 15 In series
At operating cond. (50°C)	
Pmpp	8.10 kWp
U mpp	427 V
I mpp	19 A

Inverter

Manufacturer	Generic
Model (Original PVsyst database)	9 kWac inverter
Unit Nom. Power	9.00 kWac
Number of inverters	2 * MPPT 50% 1 unit
Total power	9.0 kWac
Operating voltage	150-750 V
Max. power (=>25°C)	10.00 kWac
Pnom ratio (DC:AC)	1.00
No power sharing between MPPTs	

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	1 unit
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. 378 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	0.962	0.892	0.816	0.681	0.440	0.000

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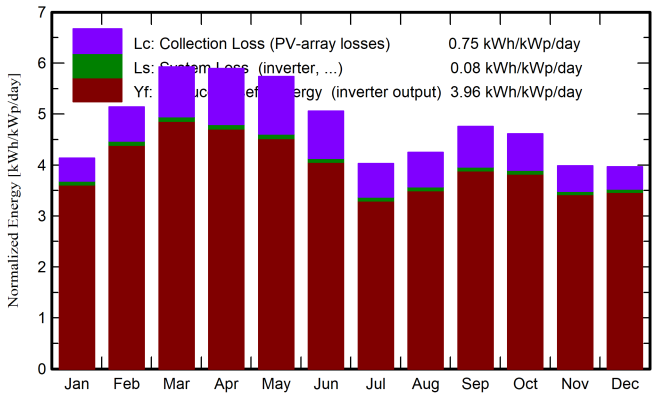
Main results

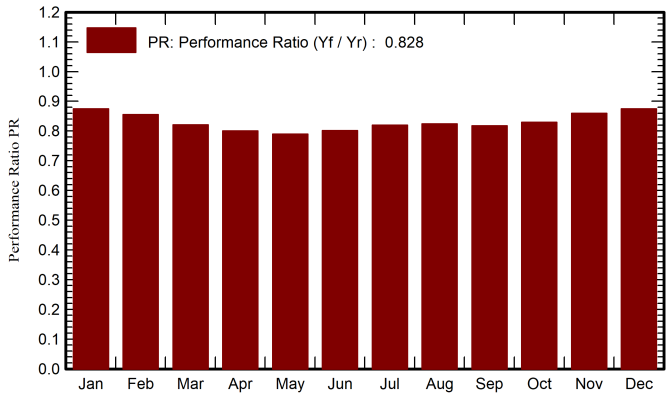
System Production

Produced Energy	13014.57 kWh/year	Specific production	1446 kWh/kWp/year
		Perf. Ratio PR	82.78 %

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	99.4	47.59	14.27	128.1	126.1	1028	1009	0.875
February	119.5	60.26	18.56	143.8	141.2	1128	1108	0.856
March	165.0	74.15	24.88	183.6	180.2	1381	1357	0.821
April	174.8	85.27	30.28	176.7	173.1	1296	1273	0.800
May	188.0	97.50	34.20	177.8	173.7	1287	1263	0.789
June	164.5	98.17	33.31	151.8	148.1	1117	1095	0.802
July	133.7	87.44	30.67	124.9	121.7	941	921	0.819
August	136.5	88.33	29.49	131.7	128.3	998	977	0.824
September	135.2	74.28	28.69	142.7	139.6	1071	1050	0.818
October	125.9	72.88	26.36	143.0	140.4	1088	1068	0.829
November	99.5	63.19	20.52	119.6	117.3	942	925	0.860
December	94.1	49.86	15.69	123.0	120.8	986	968	0.875
Year	1636.2	898.92	25.61	1746.8	1710.5	13264	13015	0.828

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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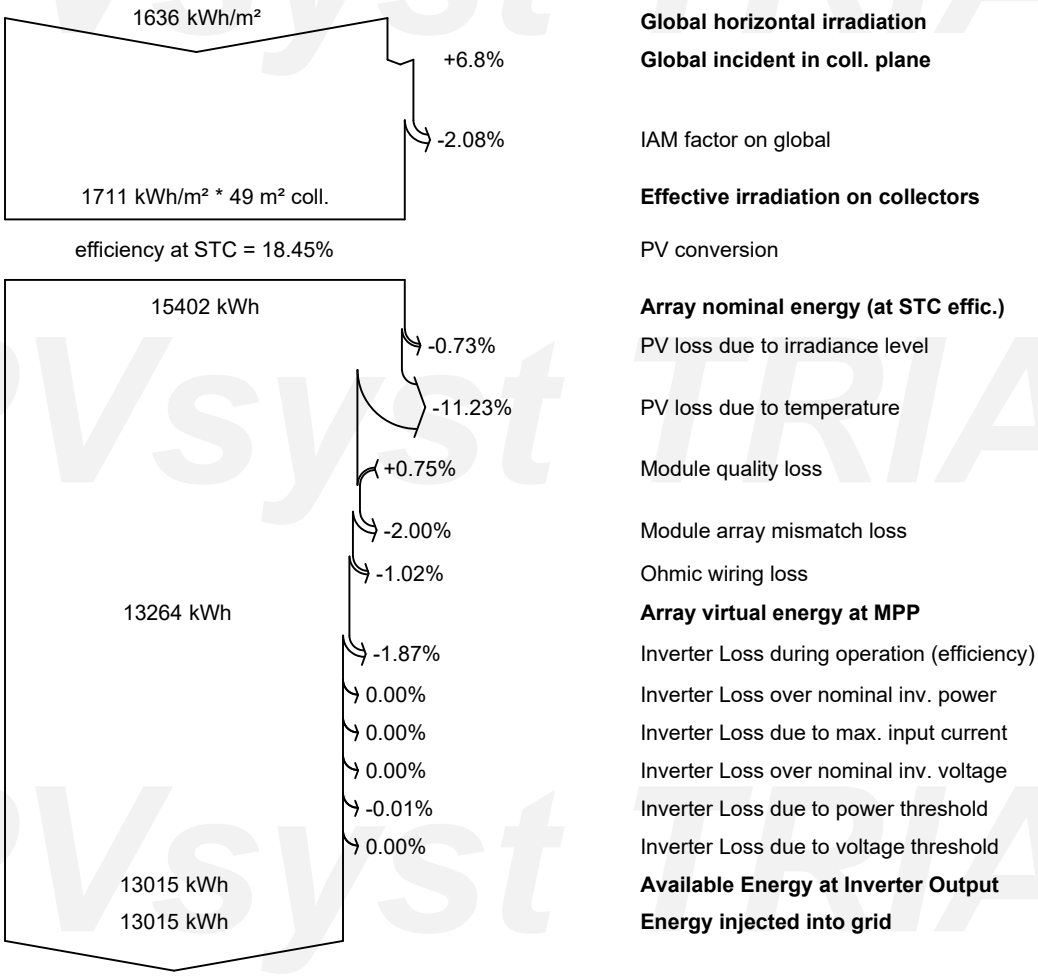
Loss diagram



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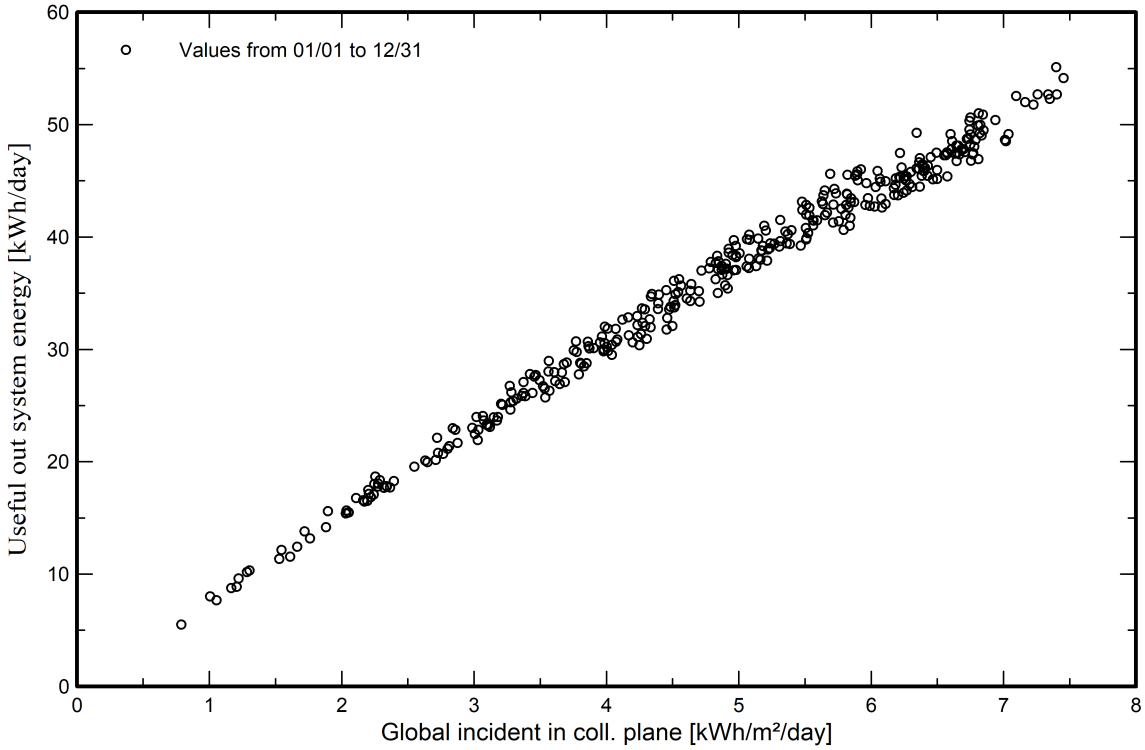
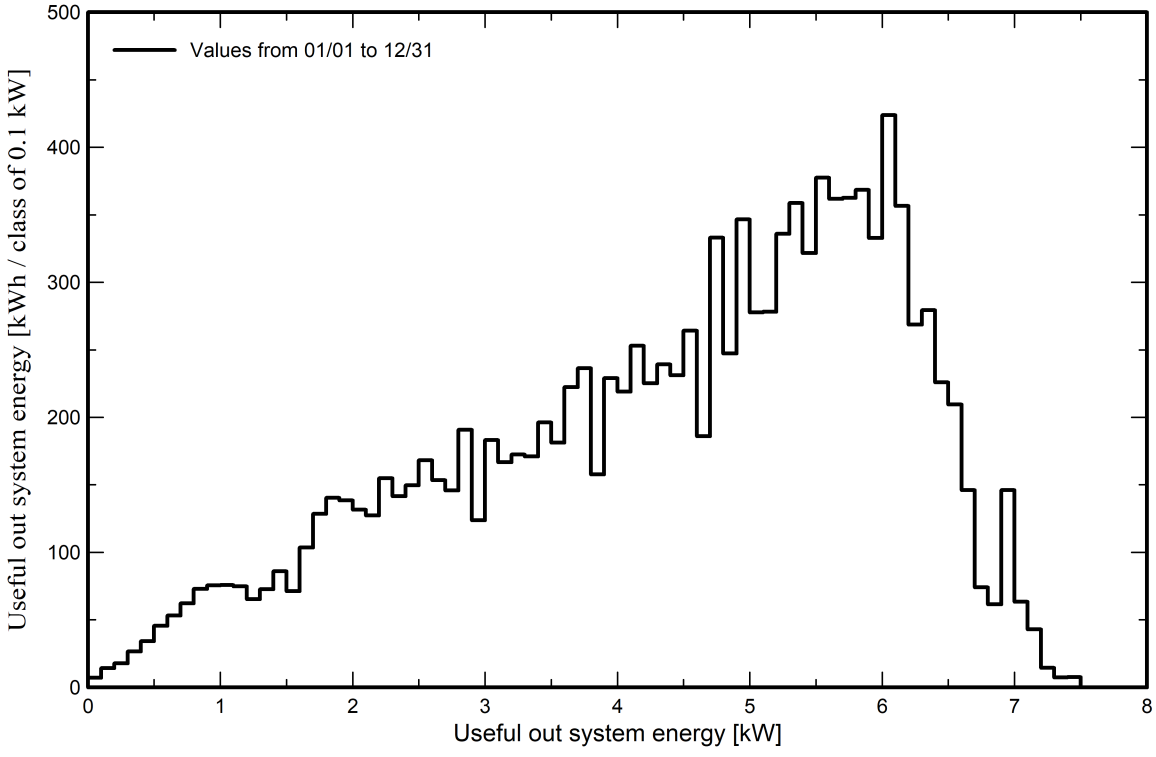
Predef. graphs

Daily Input/Output diagram



System Output Power Distribution



Single-line diagram

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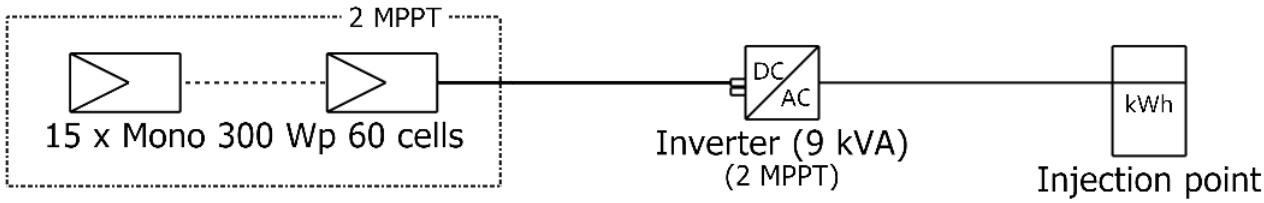

PV module	Mono 300 Wp 60 cells
Inverter	9 kWac inverter
String	15 x Mono 300 Wp 60 cells

	Orai_Project	
	VC0 : New simulation variant	08/30/24