Version 7.3.2

PVsyst - Simulation report

Grid-Connected System

Project: MATHURA DAS MATHUR HOSPITAL,JODHPUR-1000KW

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 1356 kWp

Jodhpur - India

Author

Oriana power private limited (India)

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Project summary

Geographical Site
Jodhpur
India

Situation

Latitude	26.27 °N
Longitude	73.01 °E
Altitude	245 m
Time zone	UTC+5.5

Project settings

Albedo	0.20

Meteo data
Jodhpur
Meteonorm 8.1 (1996-2015) - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation
Fixed plane
Tilt/Azimuth 20 / 40 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	4047 units
Pnom total	1356 kWp

Inverters

Nb. of units	10 units
Pnom total	1000 kWac
Pnom ratio	1.356

Results summary

Produced Energy	2285775 kWh/year	Specific production	1686 kWh/kWp/year	Perf. Ratio PR	83.39 %

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	20 / 40 °		Diffuse	Perez, Meteonorm
			Circumsolar	separate

Horizon
Free Horizon

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer	GOLDI SOLAR PVT LTD
Model	GOLDI072F335PY24
(Custom parameters definition)	
Unit Nom. Power	335 Wp
Number of PV modules	4047 units
Nominal (STC)	1356 kWp
Modules	213 Strings x 19 In series
At operating cond. (50°C)	
Pmpp	1236 kWp
U mpp	671 V
I mpp	1841 A

Inverter

Manufacturer	Sungrow
Model	SG110-CX
(Original PVsyst database)	
Unit Nom. Power	100 kWac
Number of inverters	10 units
Total power	1000 kWac
Operating voltage	200-1000 V
Max. power (=>45°C)	110 kWac
Pnom ratio (DC:AC)	1.36
Power sharing within this inverter	

Total PV power

Nominal (STC)	1356 kWp
Total	4047 modules
Module area	8033 m²
Cell area	7343 m²

Total inverter power

Total power	1000 kWac
Max. power	1100 kWac
Number of inverters	10 units
Pnom ratio	1.36

Array losses

Array Soiling Losses
Loss Fraction 2.0 %

Thermal Loss factor
Module temperature according to irradiance
Uc (const) 29.0 W/m²K
Uv (wind) 0.0 W/m²K/m/s

DC wiring losses
Global array res. 2.0 mΩ
Loss Fraction 0.5 % at STC

LID - Light Induced Degradation
Loss Fraction 1.7 %

Module Quality Loss
Loss Fraction -0.4 %

Module mismatch losses
Loss Fraction 0.1 % at MPP

Strings Mismatch loss
Loss Fraction 0.1 %

IAM loss factor
Incidence effect (IAM): User defined profile

0°	10°	20°	40°	50°	60°	70°	80°	90°
1.000	0.999	0.998	0.983	0.967	0.945	0.912	0.764	0.000

System losses

Unavailability of the system
Time fraction 0.1 %
0.4 days,
3 periods

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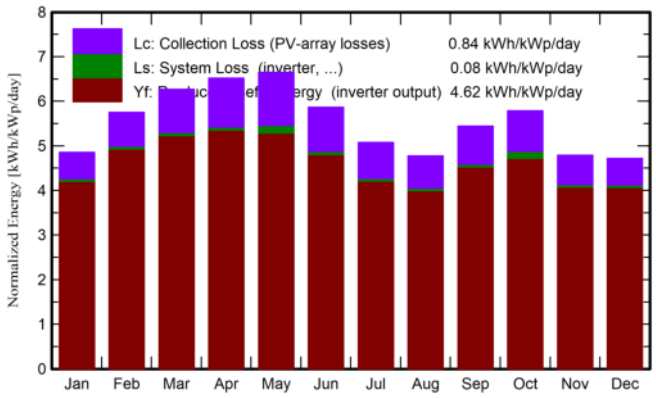
Main results

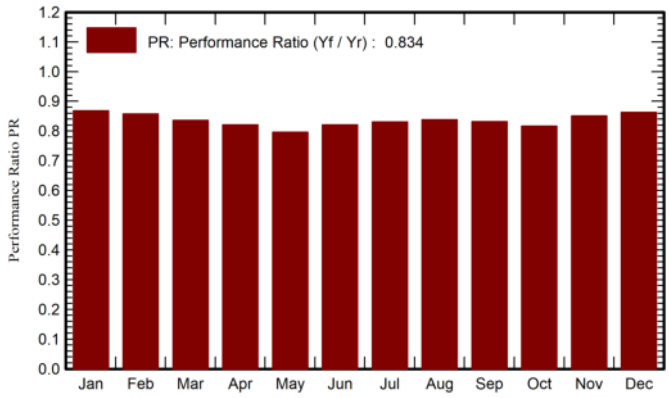
System Production

Produced Energy	2285775 kWh/year	Specific production	1686 kWh/kWp/year
		Performance Ratio PR	83.39 %

Normalized productions (per installed kWp)



Performance Ratio PR



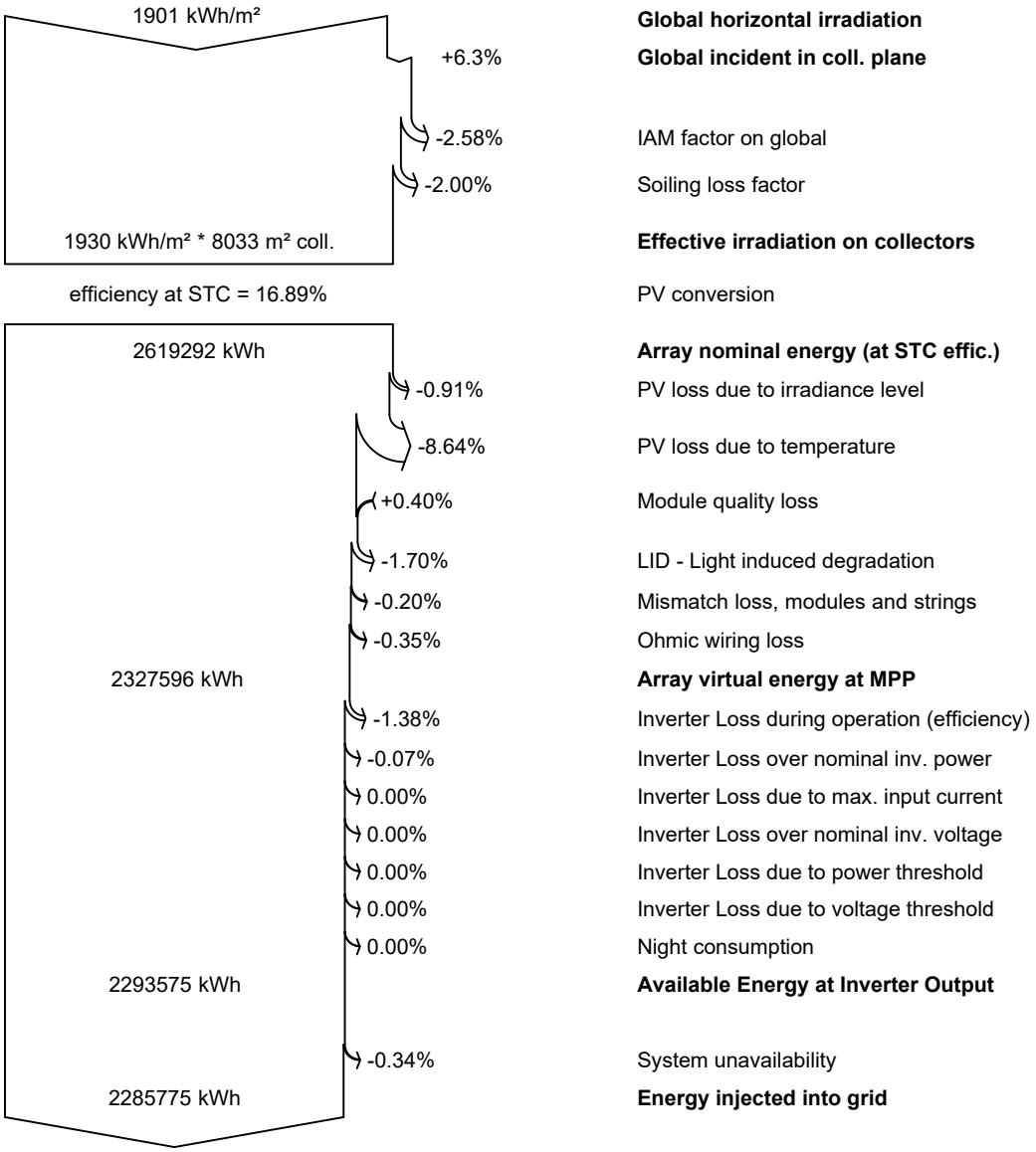
Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_Grid kWh	PR ratio
January	122.2	38.4	16.56	150.5	142.9	179457	177009	0.868
February	138.0	43.3	20.22	161.2	153.9	189835	187234	0.857
March	179.7	64.5	26.81	194.3	186.3	223199	220100	0.835
April	193.6	78.6	31.33	195.6	187.4	220841	217780	0.821
May	211.9	87.5	35.12	206.1	197.0	229586	222526	0.797
June	185.7	101.7	34.03	176.0	167.9	198516	195783	0.820
July	165.0	98.2	31.64	157.3	149.9	179759	177210	0.831
August	150.3	92.4	29.82	148.0	141.3	170673	168213	0.838
September	158.8	75.0	29.84	163.4	156.2	186959	184356	0.832
October	159.0	57.4	28.62	179.4	171.5	205166	198523	0.816
November	120.6	47.3	22.70	143.7	136.9	168249	165844	0.851
December	116.3	35.8	18.12	146.3	139.0	173698	171198	0.863
Year	1901.1	820.2	27.10	2021.8	1930.1	2325937	2285775	0.834

Legends

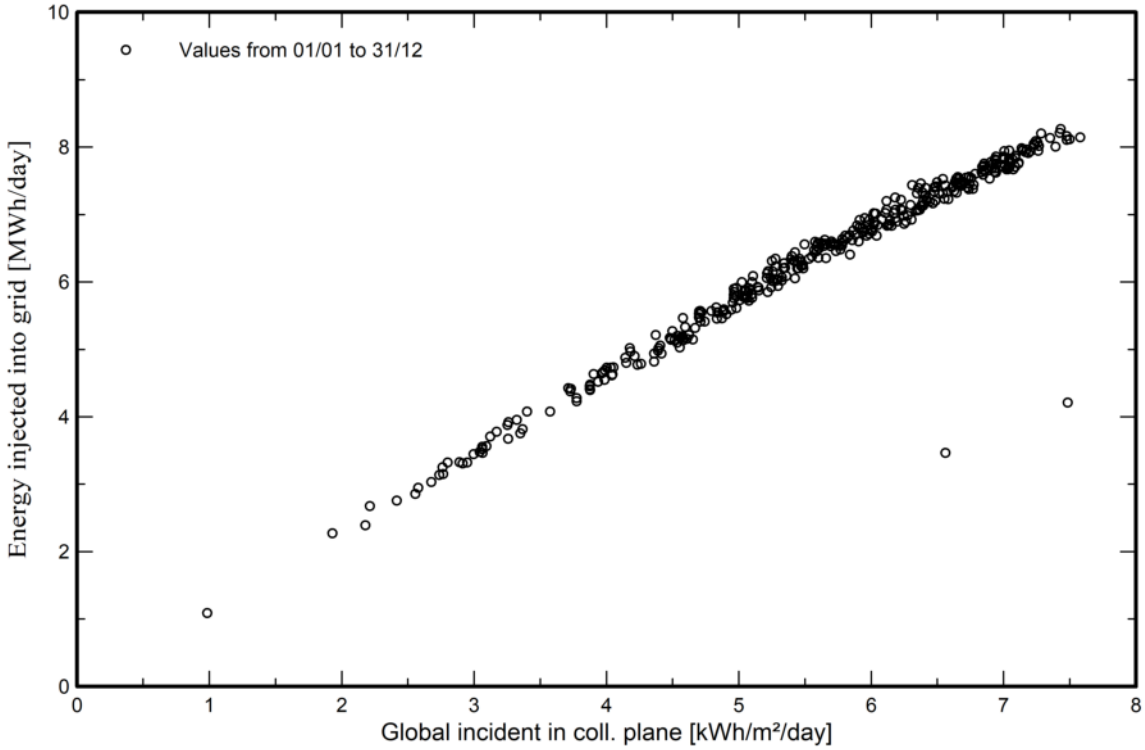
GlobHor	Global horizontal irradiation
DiffHor	Horizontal diffuse irradiation
T_Amb	Ambient Temperature
GlobInc	Global incident in coll. plane
GlobEff	Effective Global, corr. for IAM and shadings
EArray	Effective energy at the output of the array
E_Grid	Energy injected into grid
PR	Performance Ratio

Loss diagram

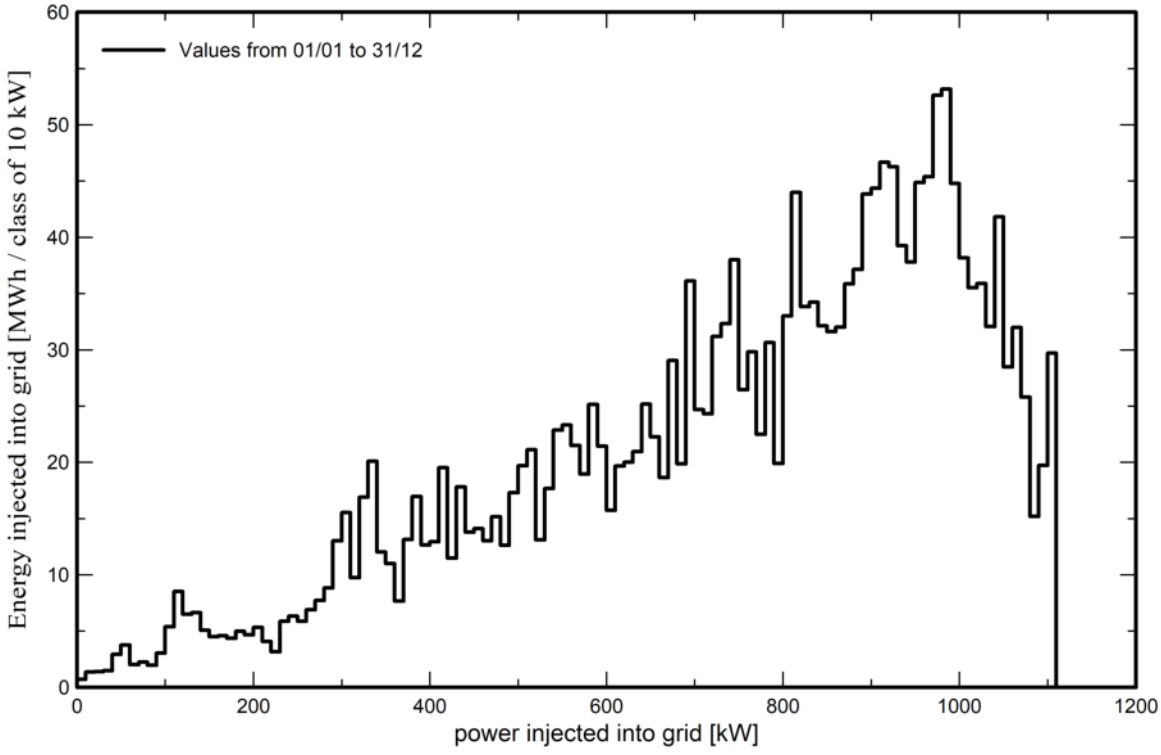


Predef. graphs

Daily Input/Output diagram



System Output Power Distribution



P50 - P90 evaluation

Meteo data

Source	Meteonorm 8.1 (1996-2015)
Kind	Not defined
Year-to-year variability(Variance)	-1.0 %
Specified Deviation	

Simulation and parameters uncertainties

PV module modelling/parameters	1.0 %
Inverter efficiency uncertainty	0.5 %
Soiling and mismatch uncertainties	1.0 %
Degradation uncertainty	1.0 %

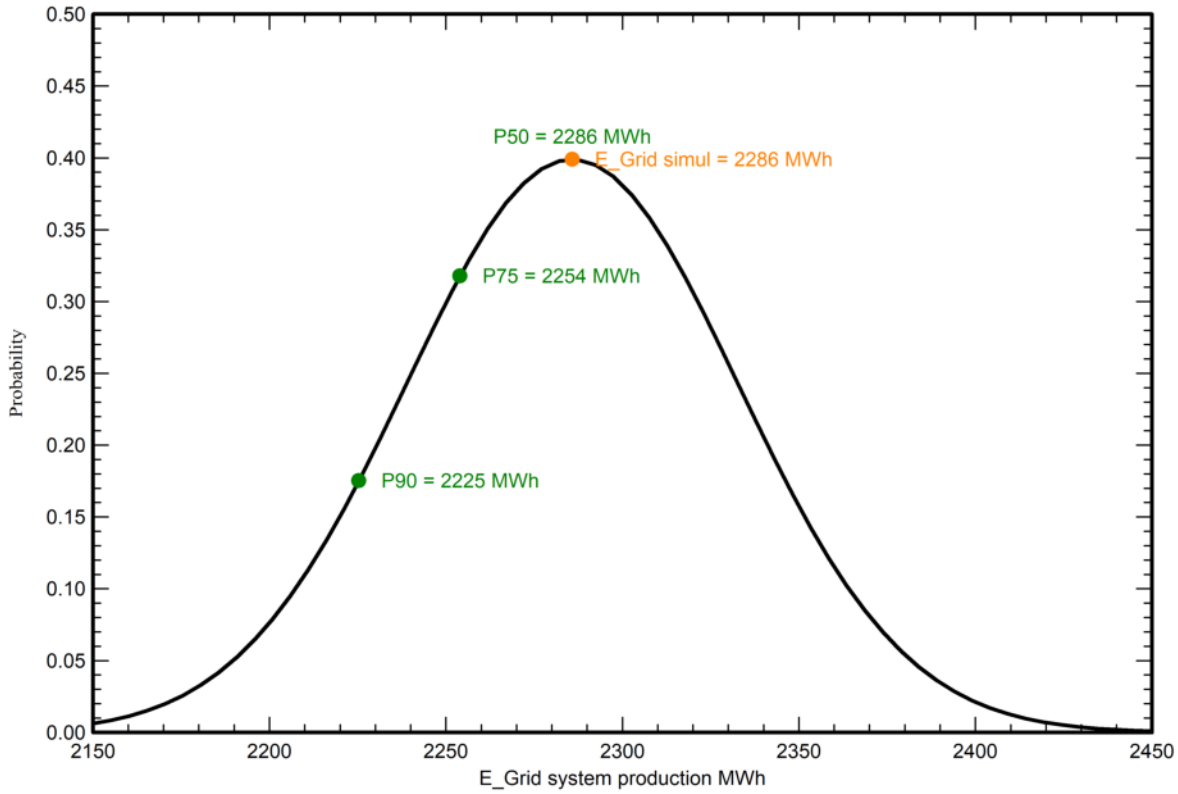
Global variability (meteo + system)

Variability (Quadratic sum)	2.1 %

Annual production probability

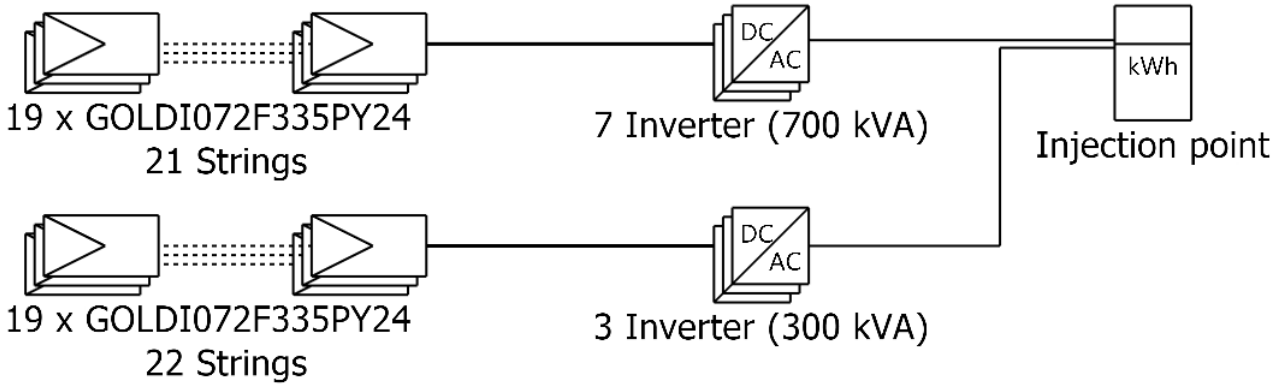
Variability	47 MWh
P50	2286 MWh
P90	2225 MWh
P75	2254 MWh

Probability distribution



Single-line diagram

PVsyst V7.3.2
VC0, Simulation date:
16/03/23 16:41
with v7.3.2



PV module	GOLDI072F335PY24
Inverter	SG110-CX
String	19 x GOLDI072F335PY24

	MATHURA DAS MATHUR HOSPITAL,JODHPUR-1000KW	Oriana power private limited (India)
	VC0 : New simulation variant	16/03/23