Version 7.2.8

PVsyst - Simulation report

Grid-Connected System

Project: SUNRISE AGRI IMPEX

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 148 kWp

SAVLI - India

Author

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Project summary

Geographical Site
SAVLI
India

Situation

Latitude	22.47 °N
Longitude	73.19 °E
Altitude	38 m
Time zone	UTC+5.5

Project settings

Albedo	0.20

Meteo data
SAVLI
Meteonorm 8.0 (1996-2015), Sat=47% - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation
Fixed plane
Tilt/Azimuth 20 / 0 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	272 units
Pnom total	148 kWp

Inverters

Nb. of units	1 Unit
Pnom total	125 kWac
Pnom ratio	1.186

Results summary

Produced Energy	229.7 MWh/year	Specific production	1549 kWh/kWp/year	Perf. Ratio PR	78.19 %

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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 20 / 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	AXIpremium XXL HC AC-545MH/144V
(Original PVsyst database)	
Unit Nom. Power	545 Wp
Number of PV modules	272 units
Nominal (STC)	148 kWp
Modules	17 Strings x 16 In series
At operating cond. (50°C)	
Pmpp	135 kWp
U mpp	601 V
I mpp	225 A

Inverter

Manufacturer	Generic
Model	SG125CX-P2
(Custom parameters definition)	
Unit Nom. Power	125 kWac
Number of inverters	1 unit
Total power	125 kWac
Operating voltage	180-1000 V
Pnom ratio (DC:AC)	1.19

Total PV power

Nominal (STC)	148 kWp
Total	272 modules
Module area	703 m²
Cell area	649 m²

Total inverter power

Total power	125 kWac
Nb. of inverters	1 Unit
Pnom ratio	1.19

Array losses

Array Soiling Losses
Loss Fraction 3.0 %

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. 44 mΩ
Loss Fraction 1.5 % at STC

Serie Diode Loss
Voltage drop 0.7 V
Loss Fraction 0.1 % at STC

LID - Light Induced Degradation
Loss Fraction 2.0 %

Module Quality Loss
Loss Fraction -0.2 %

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

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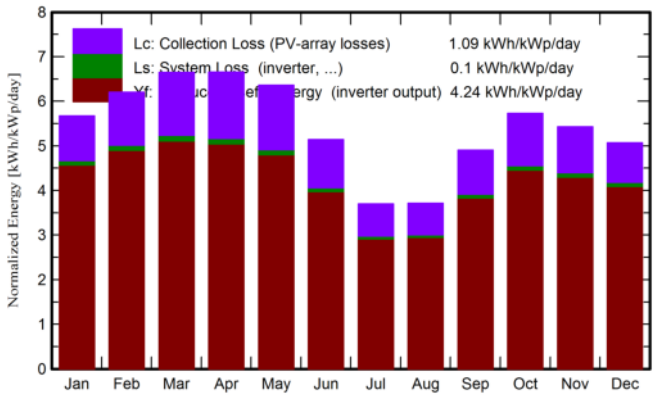
Main results

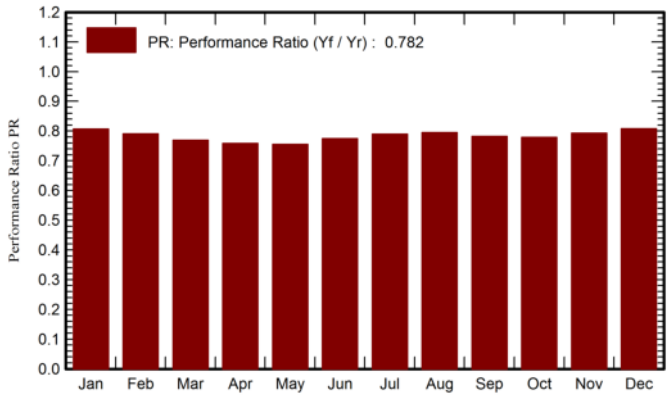
System Production

Produced Energy	229.7 MWh/year	Specific production	1549 kWh/kWp/year
		Performance Ratio PR	78.19 %

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	137.4	43.06	19.73	176.0	166.9	21.48	21.04	0.806
February	146.1	48.75	22.96	173.7	165.1	20.84	20.37	0.791
March	188.3	67.98	28.37	206.2	195.5	24.08	23.51	0.769
April	197.3	77.44	31.80	199.7	189.0	23.01	22.47	0.759
May	207.4	93.05	34.31	197.2	185.9	22.60	22.07	0.755
June	165.1	99.55	32.27	154.2	145.0	18.09	17.70	0.774
July	121.3	88.92	29.56	114.6	107.3	13.70	13.42	0.790
August	117.9	86.49	28.47	115.1	108.0	13.84	13.56	0.795
September	140.5	73.20	28.83	147.1	138.7	17.44	17.07	0.783
October	156.9	73.22	28.85	177.6	168.0	20.96	20.51	0.779
November	132.4	51.96	24.59	162.9	154.6	19.57	19.14	0.792
December	123.5	49.45	21.03	157.2	149.4	19.24	18.82	0.808
Year	1834.1	853.06	27.58	1981.6	1873.3	234.86	229.67	0.782

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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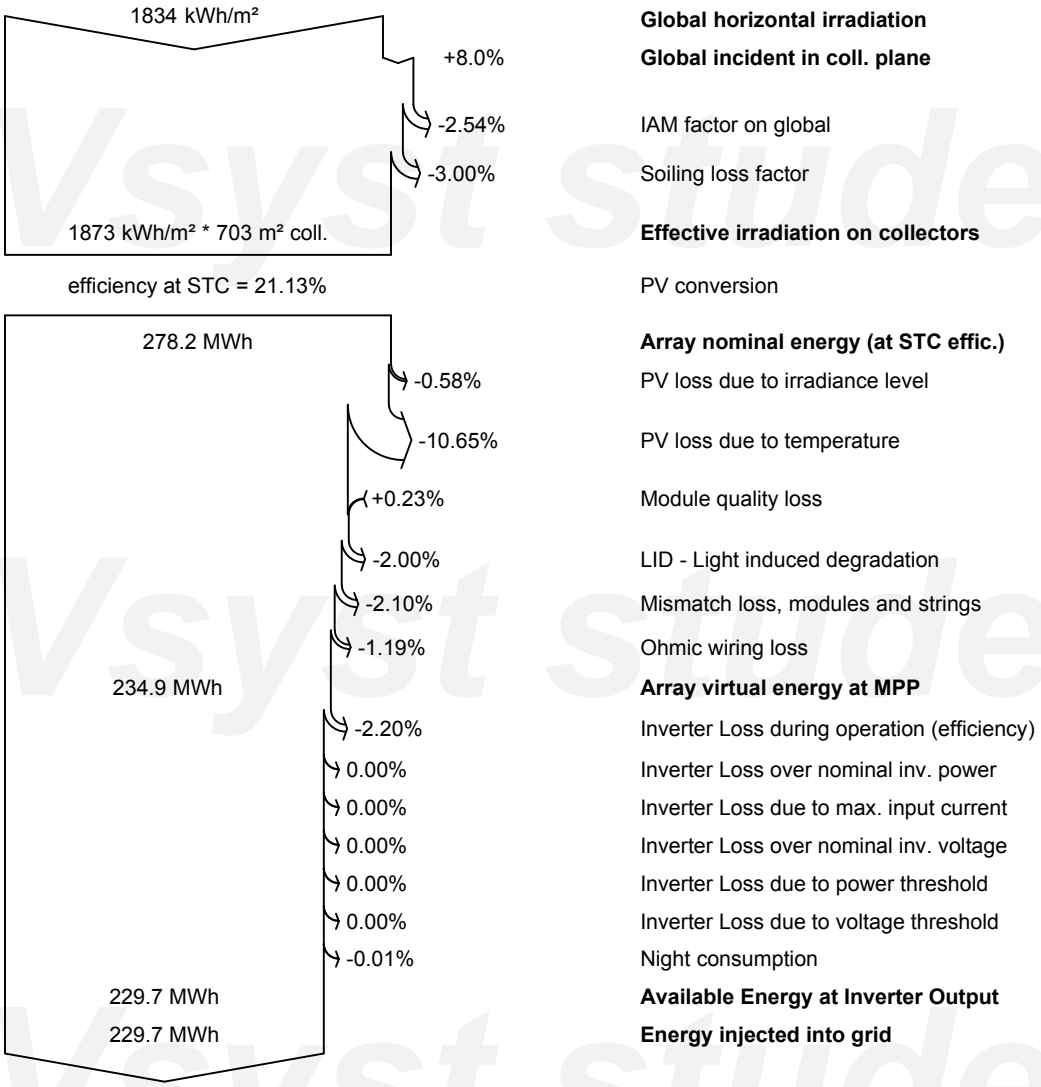
Loss diagram



Global horizontal irradiation
Global incident in coll. plane
IAM factor on global
Soiling loss factor
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
LID - Light induced degradation
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
Night consumption
Available Energy at Inverter Output
Energy injected into grid

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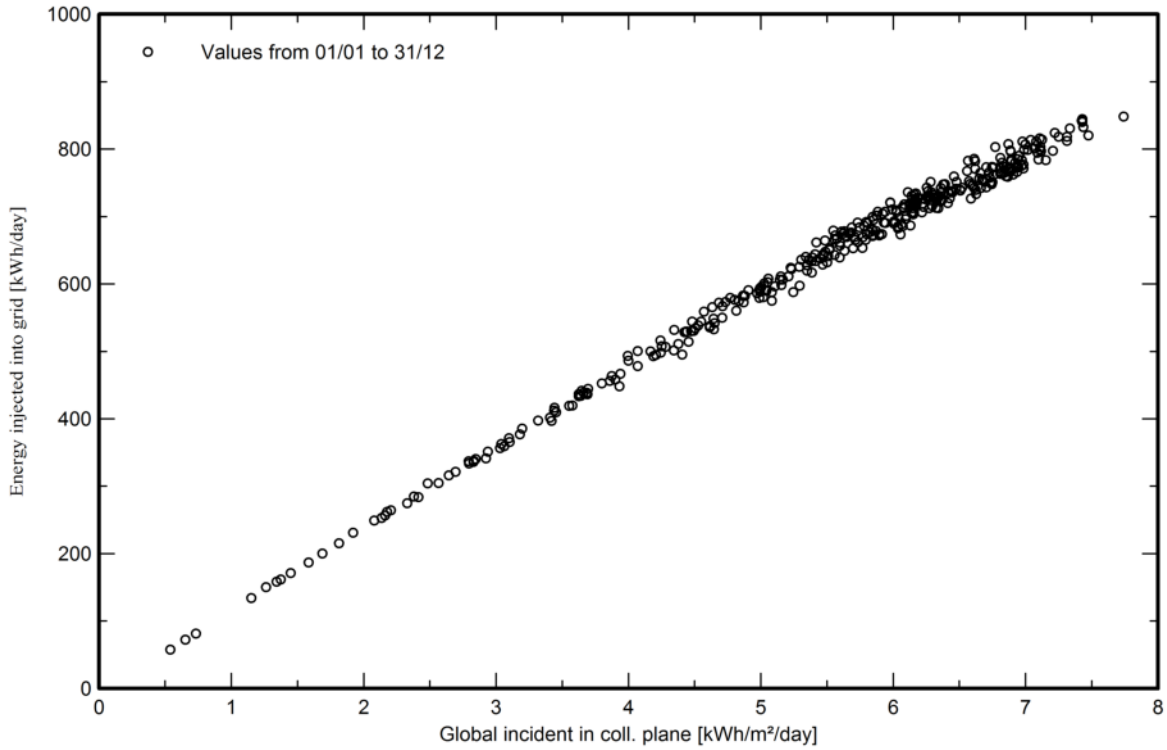
Special graphs

Daily Input/Output diagram



System Output Power Distribution