PVSYST
PHOTOVOLTAIC SOFTWARE

PVsyst - Simulation report

Grid-Connected System

Project: New Project

Variant: New simulation variant

No 3D scene defined, no shadings

System power: 1001 kWp

Lomita Park - United States

Author

PVsyst V8.0.12
VC0, Simulation date:
05/06/25 00:40
with V8.0.12

Project summary

Geographical Site
Lomita Park
United States

Situation
Latitude 37.62 °(N)
Longitude -122.38 °(W)
Altitude 9 m
Time zone UTC-8

Project settings
Albedo 0.20

Weather data
Lomita Park
Meteonorm 8.2 (1991-2005) - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

Orientation #1
Fixed plane
Tilt/Azimuth 15 / 180 °

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

System information

PV Array
Nb. of modules 2502 units
Pnom total 1001 kWp

Inverters
Nb. of units 9 units
Total power 900 kWac
Grid power limit 720 kWac
Grid lim. Pnom ratio 1.390

Results summary

Produced Energy 1285.0 MWh/year | Specific production 1284 kWh/kWp/year | Perf. Ratio PR 86.81 %

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General parameters

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

Orientation #1
Fixed plane
Tilt/Azimuth 15 / 180 °

Models used
Transposition Perez
Diffuse Perez, Meteonorm
Circumsolar separate

Horizon
Free Horizon

Near Shadings
no Shadings

User's needs
Unlimited load (grid)

Grid power limitation
Active power 720 kWac
Pnom ratio 1.390

PV Array Characteristics

PV module
Manufacturer Generic
Model JKM-400M-72H
(Original PVsyst database)
Unit Nom. Power 400 Wp
Number of PV modules 2502 units
Nominal (STC) 1001 kWp
Modules 139 string x 18 In series
At operating cond. (50°C)
Pmpp 913 kWp
U mpp 668 V
I mpp 1367 A

Inverter
Manufacturer Generic
Model Sunny Highpower SHP100-21-PEAK3
(Original PVsyst database)
Unit Nom. Power 100 kWac
Number of inverters 9 units
Total power 900 kWac
Operating voltage 570-1000 V
Pnom ratio (DC:AC) 1.11

Total PV power
Nominal (STC) 1001 kWp
Total 2502 modules
Module area 5034 m²
Cell area 4468 m²

Total inverter power
Total power 900 kWac
Number of inverters 9 units
Pnom ratio 1.11

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. 8.1 mΩ
Loss Fraction 1.50 % at STC

Module Quality Loss
Loss Fraction -0.75 %

Module mismatch losses
Loss Fraction 2.00 % at MPP

Strings Mismatch loss
Loss Fraction 0.15 %

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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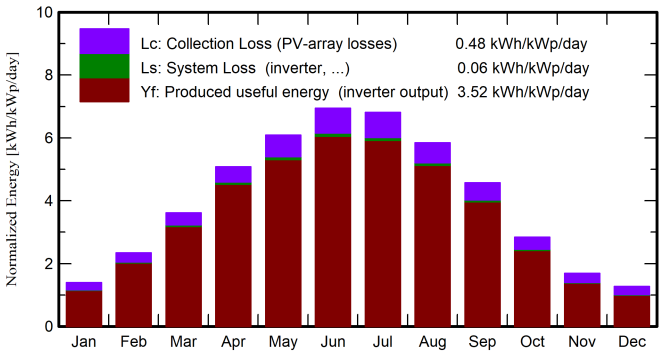
Main results

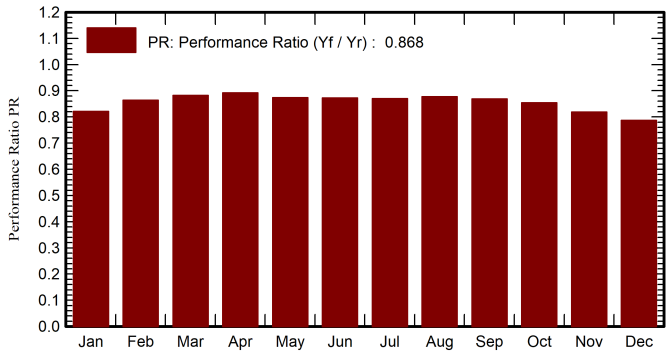
System Production

Produced Energy	1285.0 MWh/year	Specific production	1284 kWh/kWp/year
		Perf. Ratio PR	86.81 %

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	66.2	30.00	9.25	43.4	37.6	36.3	35.7	0.822
February	88.5	36.88	10.56	65.6	59.7	57.6	56.7	0.864
March	136.4	49.95	12.51	112.2	106.0	100.6	99.1	0.882
April	170.1	69.50	13.57	152.5	147.1	138.1	136.0	0.891
May	198.9	74.20	15.40	188.6	183.4	167.7	165.0	0.874
June	214.4	75.82	16.78	208.4	203.3	184.9	182.0	0.873
July	220.9	72.54	17.51	211.2	206.1	186.8	183.9	0.870
August	198.4	67.90	17.41	181.3	175.5	161.6	159.2	0.877
September	163.8	49.56	16.99	137.2	130.3	121.1	119.3	0.869
October	116.5	46.50	15.67	88.1	80.8	76.4	75.3	0.854
November	75.8	32.91	12.39	50.8	44.2	42.3	41.7	0.819
December	65.9	26.56	9.75	39.6	32.9	31.7	31.2	0.787
Year	1715.7	632.34	14.00	1479.1	1407.0	1305.2	1285.0	0.868

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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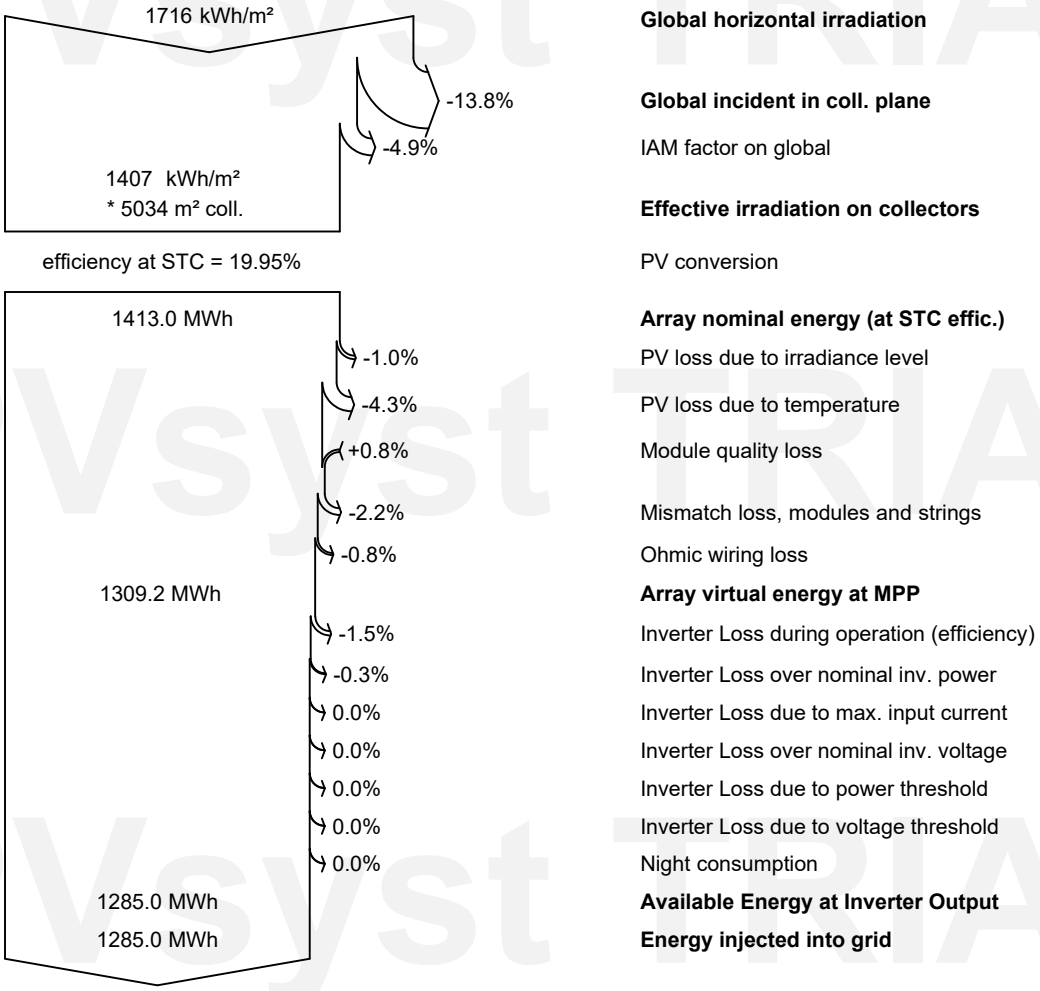
Loss diagram



Global horizontal irradiation

Global incident in coll. plane

IAM factor on global

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

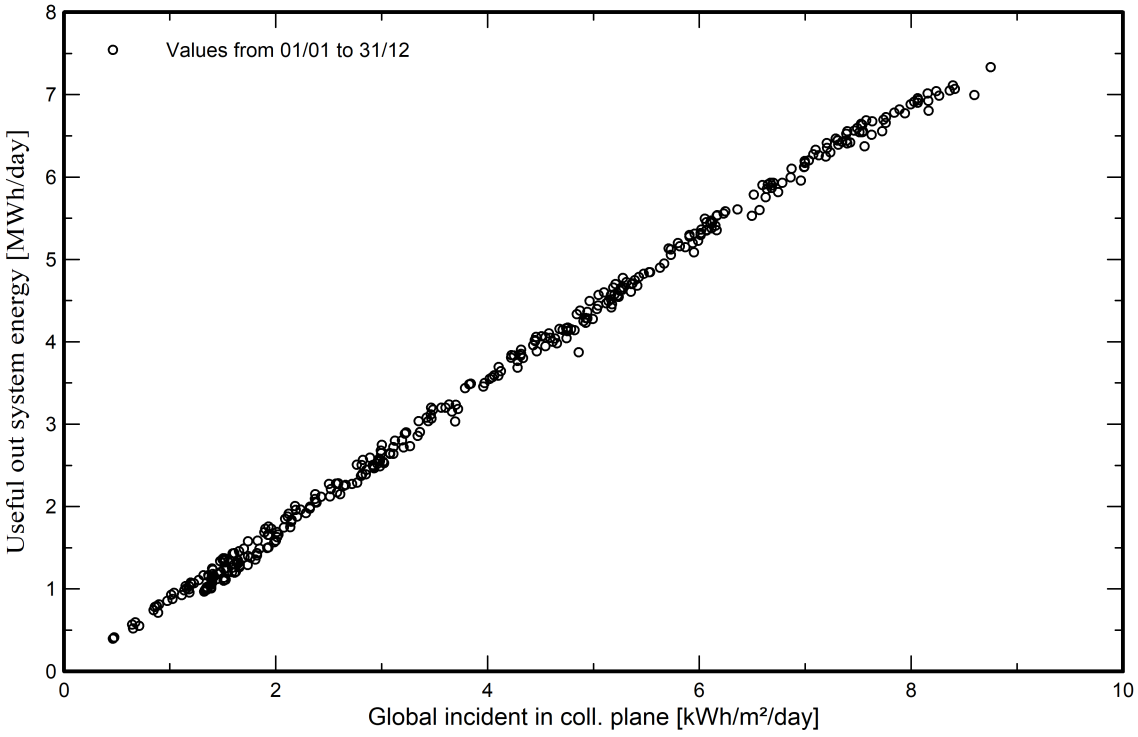
Night consumption

Available Energy at Inverter Output

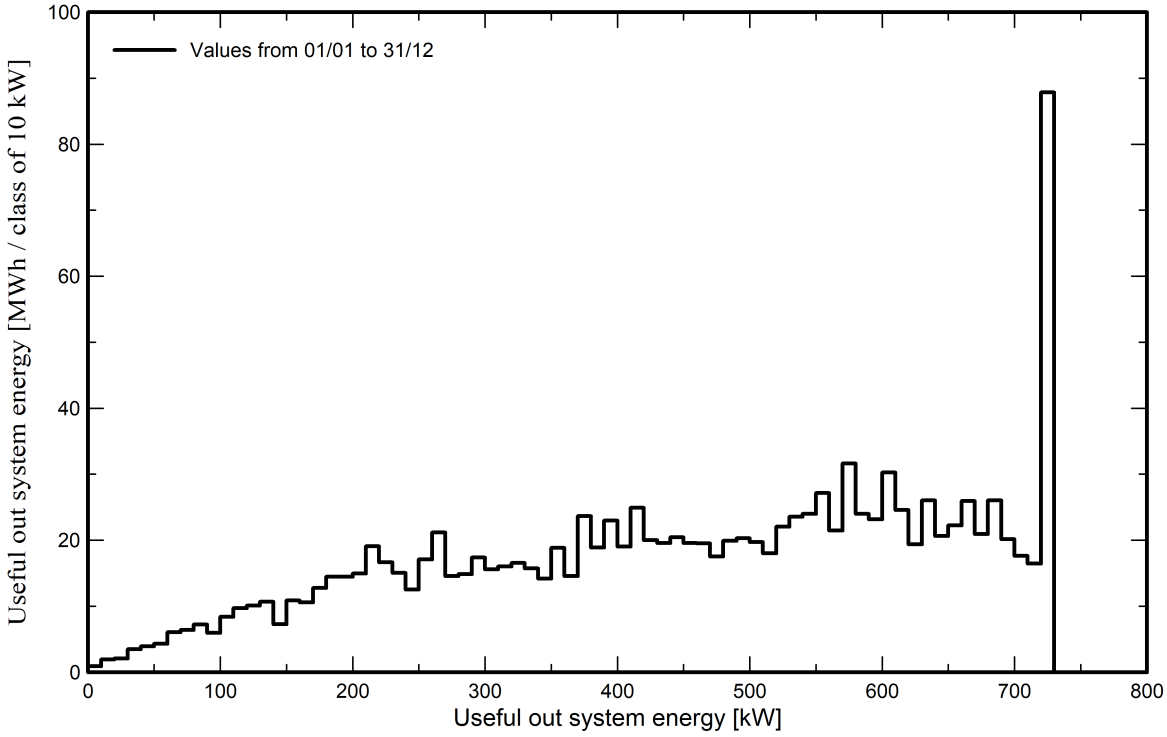
Energy injected into grid

Predef. graphs

Daily Input/Output diagram



System Output Power Distribution



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P50 - P90 evaluation

Weather data

Source	Meteonorm 8.2 (1991-2005)
Kind	Monthly averages
Synthetic - Multi-year average	
Year-to-year variability(Variance)	6.1 %

Specified Deviation

Climate change	0.0 %

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 %

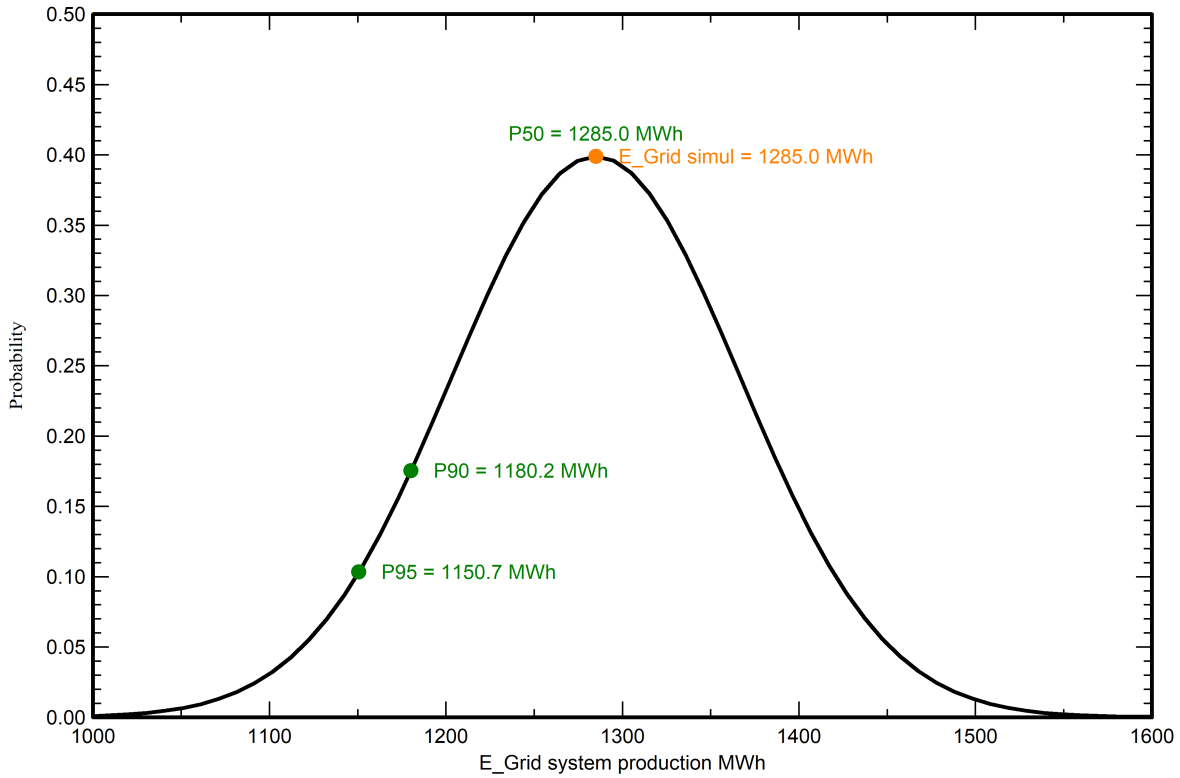
Global variability (weather data + system)

Variability (Quadratic sum)	6.4 %

Annual production probability

Variability	81.7 MWh
P50	1285.0 MWh
P90	1180.2 MWh
P95	1150.7 MWh

Probability distribution



Single-line diagram

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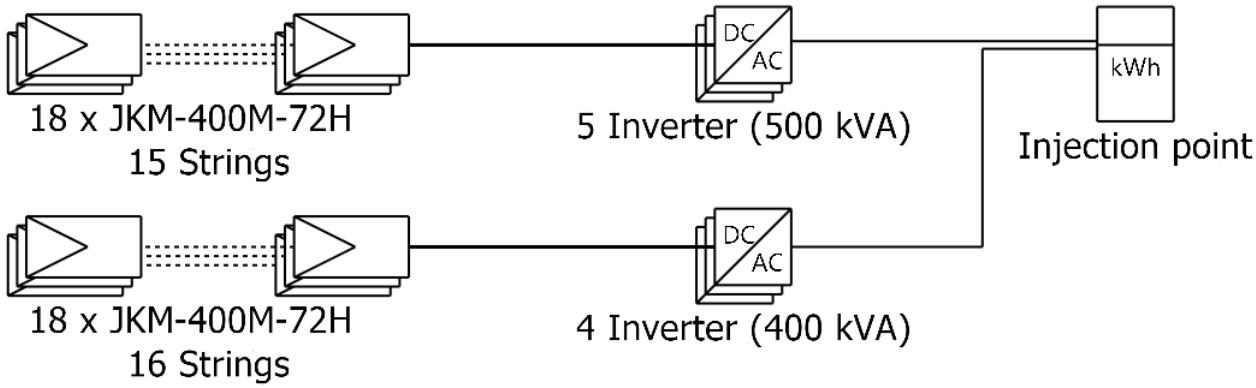

PV module	JKM-400M-72H
Inverter	Sunny Highpower SHP100-21-PEAK3
String	18 x JKM-400M-72H

	New Project	
	VC0 : New simulation variant	05/06/25