Version 7.2.4

PVsyst - Simulation report

Grid-Connected System

Project: 100 kW test project

Variant: Test simulation (100 kW, Azerbaijan)

No 3D scene defined, no shadings

System power: 100 kWp

Saatlı - Azerbaijan

Author

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Project summary

Geographical Site
Saatlı
Azerbaijan

Situation

Latitude	39.92 °N
Longitude	48.37 °E
Altitude	-14 m
Time zone	UTC+4

Project settings

Albedo	0.20

Meteo data
Saatlı
Meteonorm 8.0 (1986-2000), Sat=100% - Synthetic

System summary

Grid-Connected System

No 3D scene defined, no shadings

PV Field Orientation
Fixed plane
Tilt/Azimuth 35 / 0 °

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

System information

PV Array

Nb. of modules	200 units
Pnom total	100 kWp

Inverters

Nb. of units	3 units
Pnom total	108 kWac
Pnom ratio	0.926

Results summary

Produced Energy	136.8 MWh/year	Specific production	1368 kWh/kWp/year	Perf. Ratio PR	85.66 %

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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	35 / 0 °		Diffuse	Perez, Meteonorm
			Circumsolar	separate

Horizon
Free Horizon

Near Shadings
No Shadings

User's needs
Unlimited load (grid)

PV Array Characteristics

PV module

Manufacturer	Longi Solar
Model	LR5-66 HPH 500 M
(Original PVsyst database)	
Unit Nom. Power	500 Wp
Number of PV modules	200 units
Nominal (STC)	100 kWp
Modules	20 Strings x 10 In series
At operating cond. (50°C)	
Pmpp	91.4 kWp
U mpp	344 V
I mpp	266 A

Inverter

Manufacturer	Fronius International
Model	CL 36.0
(Original PVsyst database)	
Unit Nom. Power	36.0 kWac
Number of inverters	3 unit
Total power	108 kWac
Operating voltage	230-500 V
Pnom ratio (DC:AC)	0.93

Total PV power

Nominal (STC)	100 kWp
Total	200 modules
Module area	470 m²
Cell area	425 m²

Total inverter power

Total power	108 kWac
Nb. of inverters	3 units
Pnom ratio	0.93

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. 21 mΩ
Loss Fraction 1.5 % at STC

Module Quality Loss
Loss Fraction -0.4 %

Module mismatch losses
Loss Fraction 2.0 % at MPP

Strings Mismatch loss
Loss Fraction 0.1 %

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

0°	25°	45°	60°	65°	70°	75°	80°	90°
1.000	1.000	0.995	0.962	0.936	0.903	0.851	0.754	0.000

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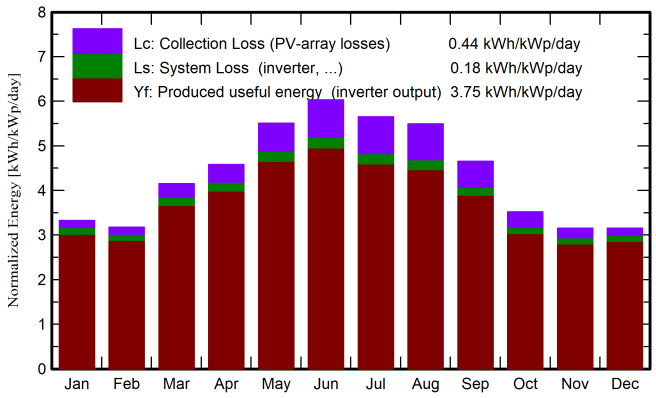
Main results

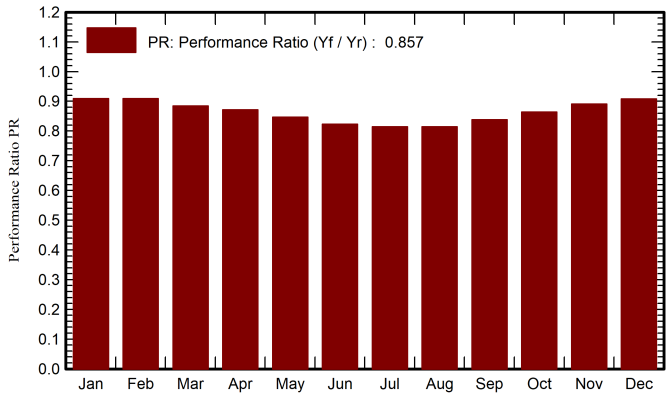
System Production

Produced Energy	136.8 MWh/year	Specific production	1368 kWh/kWp/year
		Performance Ratio PR	85.66 %

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	63.2	29.08	4.63	103.2	102.1	9.84	9.38	0.909
February	66.3	39.73	4.80	88.9	87.6	8.48	8.08	0.909
March	106.1	56.66	7.77	128.7	126.8	11.95	11.39	0.885
April	130.1	77.01	11.93	137.5	135.0	12.58	11.99	0.872
May	175.5	97.21	18.73	170.7	167.3	15.16	14.45	0.847
June	194.2	96.28	24.05	181.0	177.1	15.63	14.90	0.823
July	184.3	97.67	27.59	175.1	171.5	14.98	14.27	0.815
August	165.9	90.61	27.65	170.2	167.0	14.55	13.86	0.814
September	123.0	70.99	22.31	139.6	137.1	12.27	11.70	0.838
October	86.0	51.96	16.55	109.1	107.3	9.89	9.43	0.864
November	61.8	33.43	10.64	94.6	93.3	8.84	8.43	0.891
December	56.5	28.01	6.65	97.8	96.7	9.30	8.88	0.908
Year	1412.8	768.65	15.34	1596.7	1568.8	143.47	136.77	0.857

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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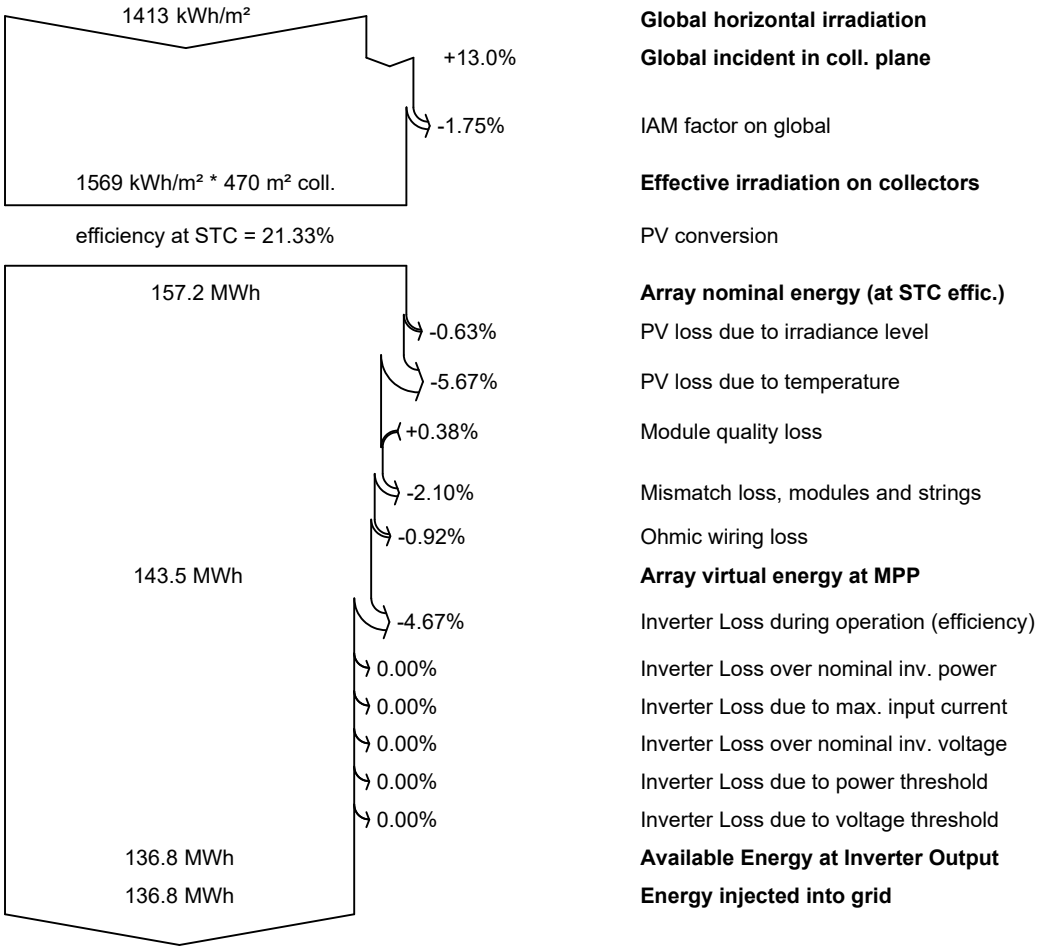
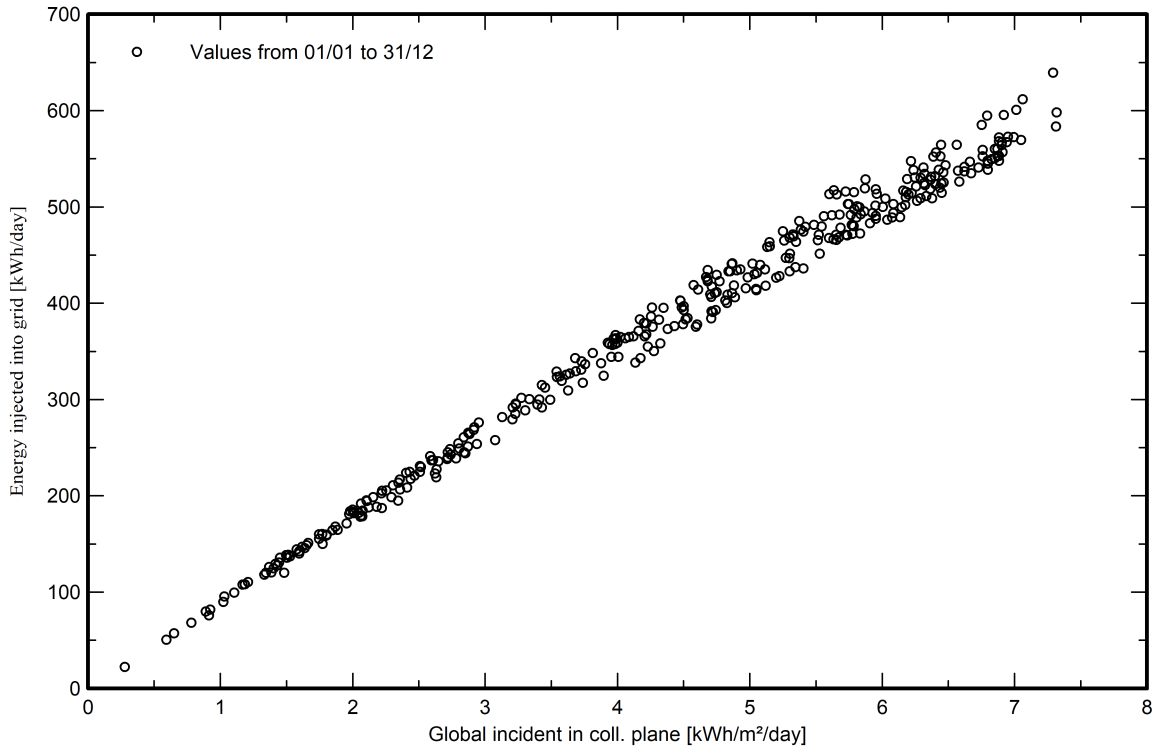
Loss diagram



Special graphs

Daily Input/Output diagram



System Output Power Distribution