

**IMPIANTO AGRIVOLTAICO PER LA PRODUZIONE DI
ENERGIA ELETTRICA DA FONTE SOLARE
(POTENZA TOTALE=14,49 MWp)**

**SITUATO NEL COMUNE DI
CASTEL SAN GIOVANNI (PC)**

PROGETTO DEFINITIVO

Stima producibilità impianto

IDENTIFICAZIONE ELABORATO

Livello Prog.	Codice	Tipo doc.	N° elaborato	Nome file	Tipo elaborato	Scala
DEF	01CSG26	PDF	25	PROD	DOC	

REV.	DATA	DESCRIZIONE	ESEGUITO	VERIFICATO	APPROVATO
00	10/06/2026	Prima emissione – Screening VIA	LA	MB	AB

PROGETTAZIONE



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PVsyst - Simulation report

Grid-Connected System

Project: RENERA-Castel SG

Variant: Nuova variante di simulazione

Tracking system

System power: 14.49 MWp

Bosco Tosca - Italy

Autore

Start Engineering S.r.l. (Italy)

Via per Rovato, 29/C

Erbusco / 25030

Italy



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PVsyst V8.1.3

VC0, Simulation date:
15/06/26 17:09
with V8.1.3

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Project summary

Geographical Site

Bosco Tosca

Italia

Situation

Latitude 45.0825 °(N)

Longitude 9.4746 °(E)

Altitude 45 m

Time zone UTC+1

Project settings

Albedo 0.20

Weather data

Bosco Tosca

Meteonorm 9.0 dll, Sat=100 % - Sintetico

System summary

Grid-Connected System

Orientation #1

Tracking plane, horizontal N-S axis

Axis azimuth 0 °

Phi min / max. +/- 55 °

Diffuse shading all trackers

Tracking algorithm

Astronomic calculation

Tracking system

Near Shadings

Linear shadings : Fast (table)

User's needs

Fixed constant load

50.0 kW

Global

438 MWh/Year

System information

PV Array

Nb. of modules 19980 units

Pnom total 14.49 MWp

Inverters

Nb. of units 46 units

Total power 13800 kWac

Grid power limit 11.00 MWac

Grid lim. Pnom ratio 1.318

Results summary

Simulation step Hourly

Produced Energy 21469 MWh/year Specific production 1481 kWh/kWp/year Perf. Ratio PR 79.07 %

Used Energy 438 MWh/year Solar Fraction SF 47.89 %

Table of contents

Project and results summary	2
General parameters, PV Array Characteristics, System losses	3
Near shading definition - Iso-shadings diagram	5
Main results	6
Loss diagram	7
Predef. graphs	8



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Tracking algorithm

Astronomic calculation

Models used

Transposition Perez

Diffuse Perez, Meteonorm

Circumsolar separate

User's needs

Fixed constant load

50.0 kW

Global

438 MWh/Year

Tracking system

Trackers configuration

Nb. of trackers 542 units

Tracking plane, horizontal N-S axis

Shading limit angles

Phi limits +/- 66.6 °

Sizes

Tracker Spacing 6.00 m

Sensitive width 2.38 m

GCR Shading 39.7 %

Horizon

Free Horizon

Near Shadings

Linear shadings : Fast (table)

Grid power limitation

Active power 11.00 MWac

Pnom ratio 1.318

Limit applied at the injection point

PV Array Characteristics

PV module

Manufacturer CSI Solar

Model CS7N-725TB-AG 1500V

(Custom parameters definition)

CSISolar_CS7N_725_TB_AG.PAN

Unit Nom. Power 725 Wp

Number of PV modules 19980 units

Nominal (STC) 14.49 MWp

Modules 833 units x 24 In series

At operating cond. (50°C)

Pmpp 13.46 MWp

U mpp 901 V

I mpp 14935 A

Total PV power

Nominal (STC) 14485 kWp

Total 19980 modules

Module area 62102 m²

Cell area 58189 m²

Inverter

Manufacturer Huawei Technologies

Model SUN2000-330KTL-H1

(Original PVsyst database)

Unit Nom. Power 300 kWac

Number of inverters 46 units

Total power 13800 kWac

Operating voltage 550-1500 V

Max. power (=>30°C) 330 kWac

Pnom ratio (DC:AC) 1.05

Power sharing within this inverter

Total inverter power

Total power 13800 kWac

Max. power 15180 kWac

Number of inverters 46 units

Pnom ratio 1.05

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. 2.0 mΩ

Loss Fraction 3.00 % at STC

Module Quality Loss

Loss Fraction -0.38 %

Module mismatch losses

Loss Fraction 2.00 % at MPP

Strings Mismatch loss

Loss Fraction 0.10 %



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Array losses

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

AC wiring losses

Inv. output line up to injection point

Inverter voltage 800 Vac tri
Loss Fraction 4.00 % at STC

Inverter: SUN2000-330KTL-H1

Wire section (46 Inv.) Copper 46 x 3 x 95 mm²
Average wires length 415 m



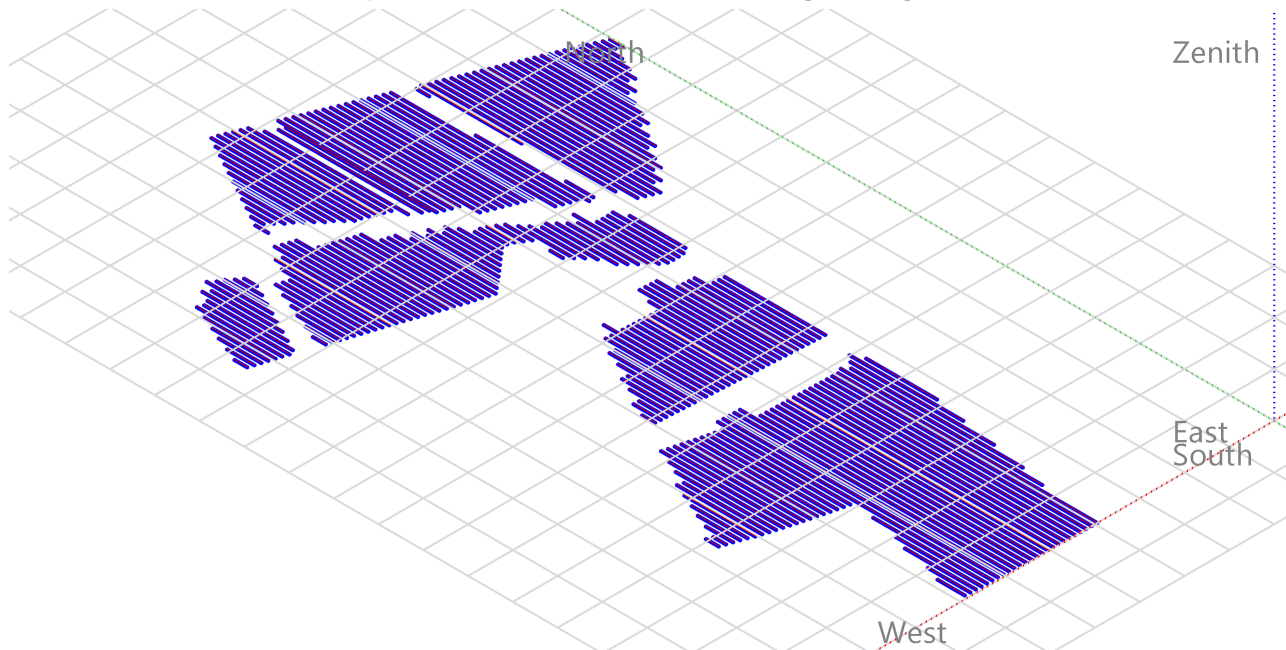
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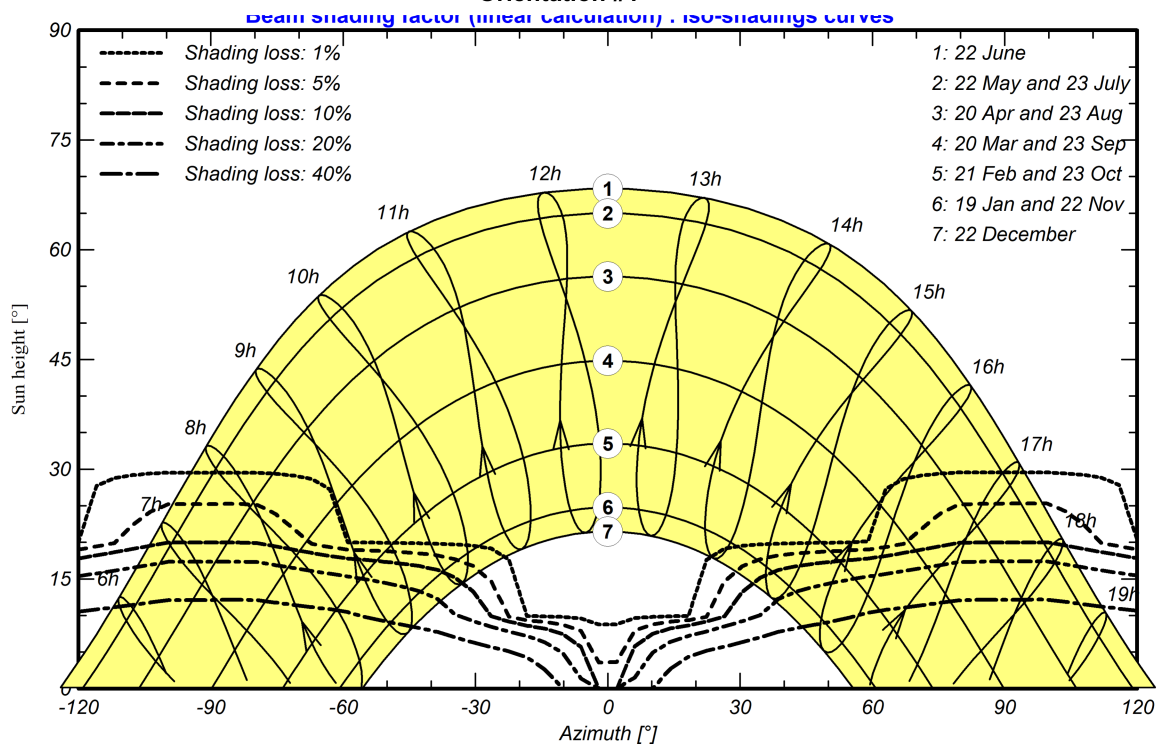
Near shadings parameter

Perspective of the PV-field and surrounding shading scene



Iso-shadings diagram

Orientation #1 -





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Main results

Simulation step

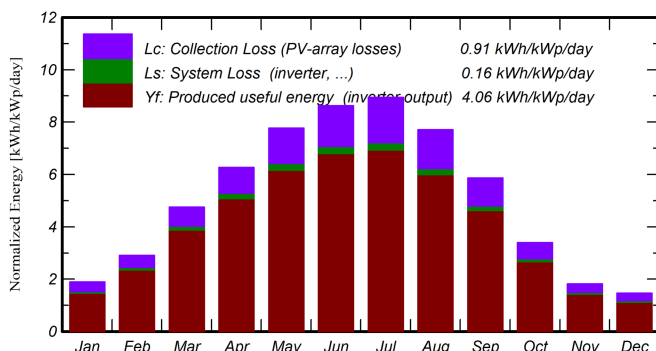
Hourly

System Production

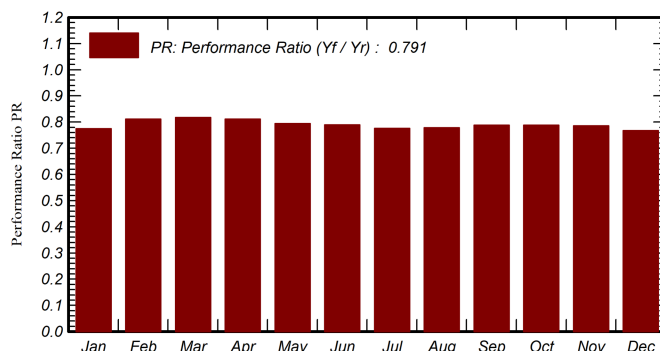
Produced Energy 21469 MWh/year
Used Energy 438 MWh/year

Specific production 1481 kWh/kWp/year
Perf. Ratio PR 79.07 %
Solar Fraction SF 47.89 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

	GlobHor	DiffHor	T_Amb	GlobInc	GlobEff	EArray	E_Grid	PR	EFrGrid	EFrGrid
	kWh/m²	kWh/m²	°C	kWh/m²	kWh/m²	MWh	MWh	ratio	MWh	MWh
January	41.7	24.31	2.94	58.7	48.7	690	646	0.775	24.2	24.2
February	58.9	29.95	4.80	81.5	71.3	998	946	0.811	20.5	20.5
March	108.6	53.80	9.54	147.3	132.4	1812	1728	0.818	19.9	19.9
April	142.9	68.62	13.99	188.2	172.3	2301	2194	0.811	16.7	16.7
May	178.6	84.69	18.53	241.0	221.7	2886	2752	0.794	15.2	15.2
June	195.5	90.88	23.37	258.7	239.1	3074	2936	0.789	13.7	13.7
July	205.7	86.89	25.51	277.3	255.3	3244	3097	0.776	14.2	14.2
August	173.9	70.86	24.88	239.1	219.6	2803	2675	0.778	16.5	16.5
September	126.4	55.21	19.99	176.1	158.8	2090	1995	0.789	18.0	18.0
October	75.7	39.82	14.39	105.5	92.6	1255	1189	0.788	21.4	21.4
November	41.7	26.11	8.73	54.7	46.9	653	609	0.785	23.1	23.1
December	33.0	21.20	3.53	45.4	37.6	532	492	0.767	25.0	25.0
Year	1382.7	652.35	14.23	1873.4	1696.2	22336	21260	0.791	228.2	228.2

Legends

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

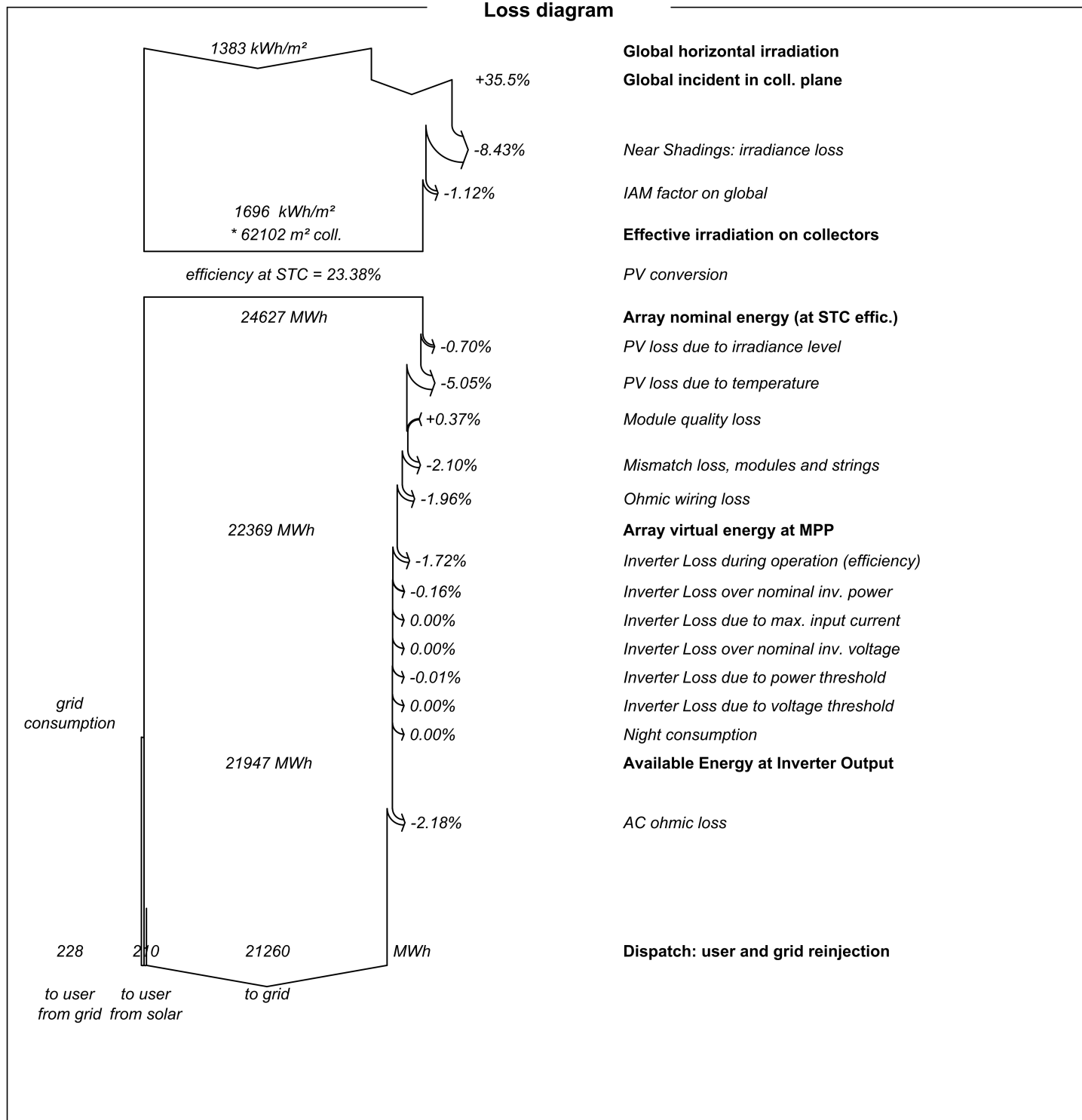


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Loss diagram





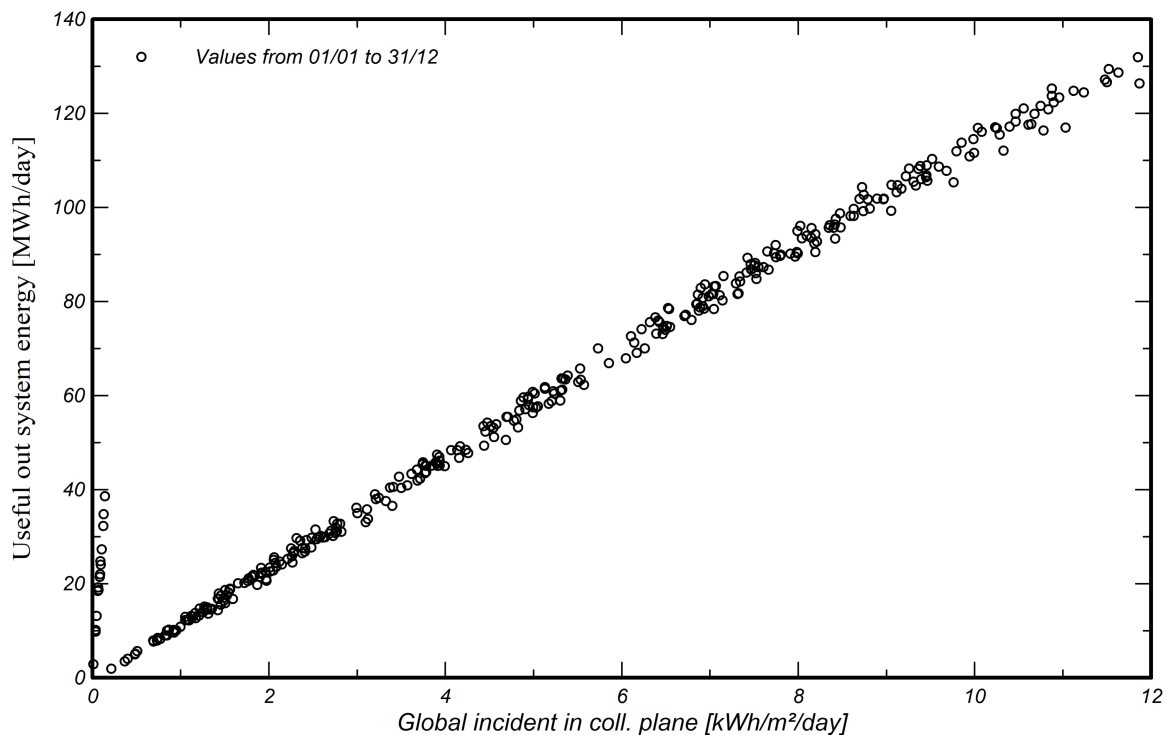
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Predef. graphs

Daily Input/Output diagram



System Output Power Distribution

