



TRANSIZIONE ECOLOGICA



REGIONE SICILIA



COMUNE DI RAMACCA



COMUNE DI CASTEL DI IUDICA

NOME PROGETTO:

Costruzione ed esercizio di un impianto agrovoltaiico avente potenza in immissione pari a 240,500 MW, con relativo collegamento alla rete elettrica, sito nei comuni di Castel di Iudica e Ramacca (CT) - Impianto "FICURINIA".

ID. PROGETTO DEL MITE:

PROCEDURA:

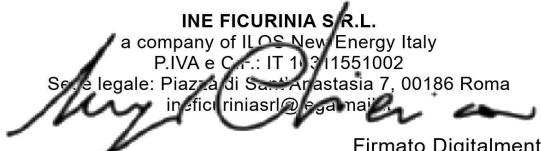
Valutazione di impatto ambientale ai sensi dell'art. 23 c. 1 del D.Lgs. 152/06 e ss.mm.ii..

PROPONENTE:



INE Ficurinia Srl  
A Company of ILOS New Energy Italy

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alla Sezione degli Ingegneri (Sez. A)  
- Settore civile e ambientale  
- Settore industriale  
- Settore dell'informazione



ORDINE DEGLI INGEGNERI  
DELLA PROVINCIA DI REGGIO CALABRIA



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ACUSTICA

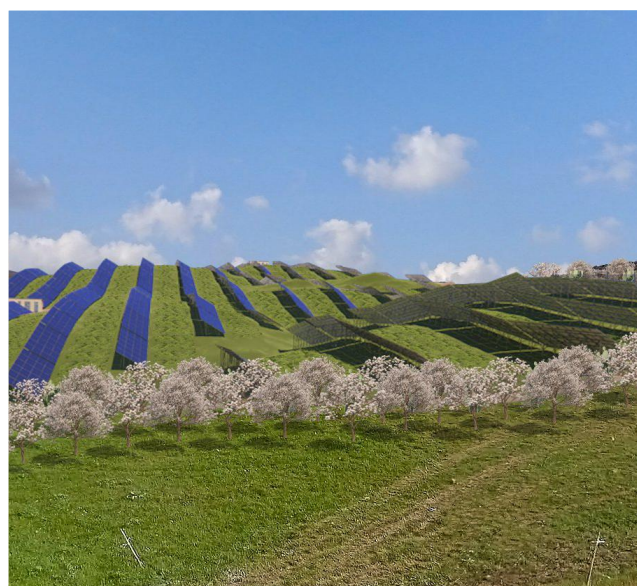
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N. REV.	DATA	REVISIONE
0	apr-22	Emissione



IDENTIFICATORE ELABORATO:

RS06REL068A0

CARTELLA:

VIA\_2

TITOLO ELABORATO:

Analisi della risorsa solare e stima di produzione energia lotto 2741

SCALA:

-

ELABORATO	VERIFICATO	VALIDATO
Ing. Baldaconi	Ing. Bolignano	INE Ficurinia S.r.l.

GEOLOGIA E IDROLOGIA



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# PVsyst - Simulation report

## Grid-Connected System

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Project: Ficurinia #2741

Variant: New simulation variant

Ground system (tables) on a hill

System power: 37.00 MWp

Cavalera - Italy



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with v7.2.12

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**Project summary**

<b>Geographical Site</b>	<b>Situation</b>	<b>Project settings</b>
<b>Cavalera</b>	Latitude	Albedo
Italy	37.51 °N	0.20
	Longitude	
	14.60 °E	
	Altitude	
	289 m	
	Time zone	
	UTC+1	
<b>Meteo data</b>		
Cavalera		
PVGIS api TMY		

**System summary**

<b>Grid-Connected System</b>	<b>Ground system (tables) on a hill</b>		
Simulation for year no 1			
<b>PV Field Orientation</b>	<b>Near Shadings</b>	<b>User's needs</b>	
Fixed plane	According to strings	Unlimited load (grid)	
Tilt/Azimuth	Electrical effect	90 %	
32 / -3 °			
<b>System information</b>			
<b>PV Array</b>		<b>Inverters</b>	
Nb. of modules	60648 units	Nb. of units	20 units
Pnom total	37.00 MWp	Pnom total	36.10 MWac
		Pnom ratio	1.025

**Results summary**

Produced Energy	61 GWh/year	Specific production	1636 kWh/kWp/year	Perf. Ratio PR	80.86 %
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**General parameters**

Grid-Connected System		Ground system (tables) on a hill	
<b>PV Field Orientation</b>		<b>Sheds configuration</b>	
<b>Orientation</b>		<b>Nb. of sheds</b>	2628 units
Fixed plane		<b>Sizes</b>	
Tilt/Azimuth	32 / -3 °	Sheds spacing	12.6 m
		Collector width	4.60 m
		Ground Cov. Ratio (GCR)	36.4 %
<b>Horizon</b>		<b>Near Shadings</b>	
Average Height	3.9 °	According to strings	
		Electrical effect	90 %
		<b>Models used</b>	
		Transposition	Perez
		Diffuse	Imported
		Circumsolar	separate
		<b>User's needs</b>	
		Unlimited load (grid)	

**PV Array Characteristics**

PV module		Inverter	
Manufacturer	JA Solar	Manufacturer	Santerno
Model	JAM78S30-610/MR	Model	Sunway TG 1800 1500V TE - 690
(Custom parameters definition)		(Custom parameters definition)	
Unit Nom. Power	610 Wp	Unit Nom. Power	1912 kWac
Number of PV modules	12936 units	Number of inverters	4 units
Nominal (STC)	7891 kWp	Total power	7648 kWac
<b>Array #1 - Area 1A</b>			
Number of PV modules	3288 units	Number of inverters	1 unit
Nominal (STC)	2006 kWp	Total power	1912 kWac
Modules	137 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	690-1200 V
Pmpp	1816 kWp	Max. power (=>25°C)	2151 kWac
U mpp	983 V	Pnom ratio (DC:AC)	1.05
I mpp	1848 A		
<b>Array #2 - Area 1B</b>			
Number of PV modules	3312 units	Number of inverters	1 unit
Nominal (STC)	2020 kWp	Total power	1912 kWac
Modules	138 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	690-1200 V
Pmpp	1829 kWp	Max. power (=>25°C)	2151 kWac
U mpp	983 V	Pnom ratio (DC:AC)	1.06
I mpp	1862 A		
<b>Array #8 - Area 4A</b>			
Number of PV modules	3168 units	Number of inverters	1 unit
Nominal (STC)	1932 kWp	Total power	1912 kWac
Modules	132 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	690-1200 V
Pmpp	1750 kWp	Max. power (=>25°C)	2151 kWac
U mpp	983 V	Pnom ratio (DC:AC)	1.01
I mpp	1781 A		
<b>Array #9 - Area 4B</b>			
Number of PV modules	3168 units	Number of inverters	1 unit
Nominal (STC)	1932 kWp	Total power	1912 kWac
Modules	132 Strings x 24 In series		



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**PV Array Characteristics**

**Array #9 - Area 4B**

**At operating cond. (50°C)**

Pmpp	1750 kWp
U mpp	983 V
I mpp	1781 A

Operating voltage	690-1200 V
Max. power (=>25°C)	2151 kWac
Pnom ratio (DC:AC)	1.01

**PV module**

Manufacturer	JA Solar
Model	JAM78S30-610/MR

(Custom parameters definition)

Unit Nom. Power	610 Wp
Number of PV modules	19776 units
Nominal (STC)	12.06 MWp

**Inverter**

Manufacturer	Santerno
Model	Sunway TG 1800 1500V TE - 600 (1662W)

(Custom parameters definition)

Unit Nom. Power	1662 kWac
Number of inverters	7 units
Total power	11634 kWac

**Array #3 - Area 2A**

Number of PV modules	2640 units
Nominal (STC)	1610 kWp
Modules	110 Strings x 24 In series

Number of inverters	1 unit
Total power	1662 kWac

**At operating cond. (50°C)**

Pmpp	1458 kWp
U mpp	983 V
I mpp	1484 A

Operating voltage	860-1200 V
Max. power (=>25°C)	1662 kWac
Pnom ratio (DC:AC)	0.97

**Array #4 - Area 2B**

Number of PV modules	2664 units
Nominal (STC)	1625 kWp
Modules	111 Strings x 24 In series

Number of inverters	1 unit
Total power	1662 kWac

**At operating cond. (50°C)**

Pmpp	1472 kWp
U mpp	983 V
I mpp	1498 A

Operating voltage	860-1200 V
Max. power (=>25°C)	1662 kWac
Pnom ratio (DC:AC)	0.98

**Array #5 - Area 3A**

Number of PV modules	2760 units
Nominal (STC)	1684 kWp
Modules	115 Strings x 24 In series

Number of inverters	1 unit
Total power	1662 kWac

**At operating cond. (50°C)**

Pmpp	1525 kWp
U mpp	983 V
I mpp	1552 A

Operating voltage	860-1200 V
Max. power (=>25°C)	1662 kWac
Pnom ratio (DC:AC)	1.01

**Array #6 - Area 3B**

Number of PV modules	2784 units
Nominal (STC)	1698 kWp
Modules	116 Strings x 24 In series

Number of inverters	1 unit
Total power	1662 kWac

**At operating cond. (50°C)**

Pmpp	1538 kWp
U mpp	983 V
I mpp	1565 A

Operating voltage	860-1200 V
Max. power (=>25°C)	1662 kWac
Pnom ratio (DC:AC)	1.02

**Array #7 - Area 3C**

Number of PV modules	2784 units
Nominal (STC)	1698 kWp
Modules	116 Strings x 24 In series

Number of inverters	1 unit
Total power	1662 kWac



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**PV Array Characteristics**

**Array #7 - Area 3C**

**At operating cond. (50°C)**

Pmpp 1538 kWp  
 U mpp 983 V  
 I mpp 1565 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1662 kWac  
 Pnom ratio (DC:AC) 1.02

**Array #15 - Area 11-12\_A**

Number of PV modules 3072 units  
 Nominal (STC) 1874 kWp  
 Modules 128 Strings x 24 In series

Number of inverters 1 unit  
 Total power 1662 kWac

**At operating cond. (50°C)**

Pmpp 1697 kWp  
 U mpp 983 V  
 I mpp 1727 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1662 kWac  
 Pnom ratio (DC:AC) 1.13

**Array #16 - Area11-12\_B**

Number of PV modules 3072 units  
 Nominal (STC) 1874 kWp  
 Modules 128 Strings x 24 In series

Number of inverters 1 unit  
 Total power 1662 kWac

**At operating cond. (50°C)**

Pmpp 1697 kWp  
 U mpp 983 V  
 I mpp 1727 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1662 kWac  
 Pnom ratio (DC:AC) 1.13

**Array #10 - Area 5**

**PV module**

Manufacturer JA Solar  
 Model JAM78S30-610/MR  
 (Custom parameters definition)

Unit Nom. Power 610 Wp  
 Number of PV modules 2232 units  
 Nominal (STC) 1362 kWp  
 Modules 93 Strings x 24 In series

**Inverter**

Manufacturer Santerno  
 Model Sunway TG 1800 1500V TE - 505  
 (Original PVsyst database)

Unit Nom. Power 1400 kWac  
 Number of inverters 1 unit  
 Total power 1400 kWac  
 Operating voltage 714-1200 V  
 Max. power (=>25°C) 1574 kWac  
 Pnom ratio (DC:AC) 0.97

**At operating cond. (50°C)**

Pmpp 1233 kWp  
 U mpp 983 V  
 I mpp 1255 A

**Array #11 - Area 6-7**

**PV module**

Manufacturer JA Solar  
 Model JAM78S30-610/MR  
 (Custom parameters definition)

Unit Nom. Power 610 Wp  
 Number of PV modules 2376 units  
 Nominal (STC) 1449 kWp  
 Modules 99 Strings x 24 In series

**Inverter**

Manufacturer Santerno  
 Model Sunway TG 1800 1500V TE - 600 (1450W)  
 (Custom parameters definition)

Unit Nom. Power 1450 kWac  
 Number of inverters 1 unit  
 Total power 1450 kWac  
 Operating voltage 860-1200 V  
 Max. power (=>25°C) 1871 kWac  
 Pnom ratio (DC:AC) 1.00

**At operating cond. (50°C)**

Pmpp 1312 kWp  
 U mpp 983 V  
 I mpp 1336 A



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**PV Array Characteristics**

**PV module**

Manufacturer JA Solar  
 Model JAM78S30-610/MR  
 (Custom parameters definition)  
 Unit Nom. Power 610 Wp  
 Number of PV modules 4320 units  
 Nominal (STC) 2635 kWp

**Inverter**

Manufacturer Santerno  
 Model Sunway TG 1800 1500V TE - 600 (1350W)  
 (Custom parameters definition)  
 Unit Nom. Power 1350 kWac  
 Number of inverters 2 units  
 Total power 2700 kWac

**Array #12 - Area 8-9-10\_A**

Number of PV modules 2160 units  
 Nominal (STC) 1318 kWp  
 Modules 90 Strings x 24 In series

Number of inverters 1 unit  
 Total power 1350 kWac

**At operating cond. (50°C)**

Pmpp 1193 kWp  
 U mpp 983 V  
 I mpp 1214 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1871 kWac  
 Pnom ratio (DC:AC) 0.98

**Array #13 - Area 8-9-10\_B**

Number of PV modules 2160 units  
 Nominal (STC) 1318 kWp  
 Modules 90 Strings x 24 In series

Number of inverters 1 unit  
 Total power 1350 kWac

**At operating cond. (50°C)**

Pmpp 1193 kWp  
 U mpp 983 V  
 I mpp 1214 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1871 kWac  
 Pnom ratio (DC:AC) 0.98

**Array #14 - Area 8-9-10\_C**

**PV module**

Manufacturer JA Solar  
 Model JAM78S30-610/MR  
 (Custom parameters definition)  
 Unit Nom. Power 610 Wp  
 Number of PV modules 2136 units  
 Nominal (STC) 1303 kWp  
 Modules 89 Strings x 24 In series

**Inverter**

Manufacturer Santerno  
 Model Sunway TG 1800 1500V TE - 600 (1300W)  
 (Custom parameters definition)  
 Unit Nom. Power 1300 kWac  
 Number of inverters 1 unit  
 Total power 1300 kWac

**At operating cond. (50°C)**

Pmpp 1180 kWp  
 U mpp 983 V  
 I mpp 1201 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 1871 kWac  
 Pnom ratio (DC:AC) 1.00

**PV module**

Manufacturer JA Solar  
 Model JAM78S30-610/MR  
 (Custom parameters definition)  
 Unit Nom. Power 610 Wp  
 Number of PV modules 16872 units  
 Nominal (STC) 10.29 MWp

**Inverter**

Manufacturer Santerno  
 Model SUNWAY STATION TG1800&900-1500V-TE 600 (2493kW)  
 (Custom parameters definition)  
 Unit Nom. Power 2493 kWac  
 Number of inverters 4 units  
 Total power 9972 kWac

**Array #17 - Area 13**

Number of PV modules 4872 units  
 Nominal (STC) 2972 kWp  
 Modules 203 Strings x 24 In series

Number of inverters 1 unit  
 Total power 2493 kWac

**At operating cond. (50°C)**

Pmpp 2691 kWp  
 U mpp 983 V  
 I mpp 2739 A

Operating voltage 860-1200 V  
 Max. power (=>25°C) 2493 kWac  
 Pnom ratio (DC:AC) 1.19



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**PV Array Characteristics**

**Array #18 - Area 14-15\_A**

Number of PV modules	3984 units	Number of inverters	1 unit
Nominal (STC)	2430 kWp	Total power	2493 kWac
Modules	166 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	860-1200 V
Pmpp	2201 kWp	Max. power (=>25°C)	2493 kWac
U mpp	983 V	Pnom ratio (DC:AC)	0.97
I mpp	2240 A		

**Array #19 - Area 14-15\_B**

Number of PV modules	4008 units	Number of inverters	1 unit
Nominal (STC)	2445 kWp	Total power	2493 kWac
Modules	167 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	860-1200 V
Pmpp	2214 kWp	Max. power (=>25°C)	2493 kWac
U mpp	983 V	Pnom ratio (DC:AC)	0.98
I mpp	2253 A		

**Array #20 - Area 14-15\_C**

Number of PV modules	4008 units	Number of inverters	1 unit
Nominal (STC)	2445 kWp	Total power	2493 kWac
Modules	167 Strings x 24 In series		
<b>At operating cond. (50°C)</b>		Operating voltage	860-1200 V
Pmpp	2214 kWp	Max. power (=>25°C)	2493 kWac
U mpp	983 V	Pnom ratio (DC:AC)	0.98
I mpp	2253 A		

**Total PV power**

Nominal (STC)	36995 kWp
Total	60648 modules
Module area	169530 m <sup>2</sup>
Cell area	156297 m <sup>2</sup>

**Total inverter power**

Total power	36104 kWac
Number of inverters	20 units
Pnom ratio	1.02

**Array losses**

**Array Soiling Losses**

Loss Fraction 2.0 %

**Thermal Loss factor**

Module temperature according to irradiance  
 U<sub>c</sub> (const) 29.0 W/m<sup>2</sup>K  
 U<sub>v</sub> (wind) 0.0 W/m<sup>2</sup>K/m/s

**Serie Diode Loss**

Voltage drop 0.7 V  
 Loss Fraction 0.1 % at STC

**LID - Light Induced Degradation**

Loss Fraction 1.0 %

**Module Quality Loss**

Loss Fraction -0.5 %

**Module mismatch losses**

Loss Fraction 0.5 % at MPP

**Strings Mismatch loss**

Loss Fraction 0.1 %

**Module average degradation**

Year no 1  
 Loss factor 0.4 %/year

**Mismatch due to degradation**

Imp RMS dispersion 0.4 %/year  
 Vmp RMS dispersion 0.4 %/year

**IAM loss factor**

Incidence effect (IAM): User defined profile

0°	30°	50°	60°	70°	75°	80°	85°	90°
1.000	1.000	1.000	1.000	1.000	0.985	0.943	0.840	0.000





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**DC wiring losses**

Global wiring resistance	0.48 mΩ		
Loss Fraction	1.5 % at STC		
<b>Array #1 - Area 1A</b>			
Global array res.	8.8 mΩ	<b>Array #2 - Area 1B</b>	Global array res. 8.8 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #3 - Area 2A</b>			
Global array res.	11 mΩ	<b>Array #4 - Area 2B</b>	Global array res. 11 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #5 - Area 3A</b>			
Global array res.	11 mΩ	<b>Array #6 - Area 3B</b>	Global array res. 10 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #7 - Area 3C</b>			
Global array res.	10 mΩ	<b>Array #8 - Area 4A</b>	Global array res. 9.1 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #9 - Area 4B</b>			
Global array res.	9.1 mΩ	<b>Array #10 - Area 5</b>	Global array res. 13 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #11 - Area 6-7</b>			
Global array res.	12 mΩ	<b>Array #12 - Area 8-9-10_A</b>	Global array res. 13 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #13 - Area 8-9-10_B</b>			
Global array res.	13 mΩ	<b>Array #14 - Area 8-9-10_C</b>	Global array res. 14 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #15 - Area 11-12_A</b>			
Global array res.	9.4 mΩ	<b>Array #16 - Area11-12_B</b>	Global array res. 9.4 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #17 - Area 13</b>			
Global array res.	5.9 mΩ	<b>Array #18 - Area 14-15_A</b>	Global array res. 7.3 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC
<b>Array #19 - Area 14-15_B</b>			
Global array res.	7.2 mΩ	<b>Array #20 - Area 14-15_C</b>	Global array res. 7.2 mΩ
Loss Fraction	1.5 % at STC		Loss Fraction 1.5 % at STC

**System losses**

<b>Auxiliaries loss</b>	
constant (fans)	10.00 kW
0.0 kW from Power thresh.	

**AC wiring losses**

<b>Inv. output line up to MV transfo</b>	
Inverter voltage	690 Vac tri
Loss Fraction	0.65 % at STC
<b>Inverters: Sunway TG 1800 1500V TE - 690, Sunway TG 1800 1500V TE - 600 (1662W), Sunway TG 1800 1500V TE - 505, Sunway TG 1800 1500V TE</b>	
Wire section (20 Inv.)	Copper 20 x 3 x 10000 mm <sup>2</sup>
Average wires length	683 m
<b>MV line up to Injection</b>	
MV Voltage	20 kV
Average each inverter	
Wires	Copper 3 x 50 mm <sup>2</sup>
Length	584 m
Loss Fraction	0.10 % at STC



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**AC losses in transformers**

**MV transfo**

Grid voltage 20 kV

**Operating losses at STC**

Nominal power at STC 36443 kVA

Iron loss (night disconnect) 1.82 kW/Inv.

Loss Fraction 0.10 % at STC

Coils equivalent resistance 3 x 2.61 mΩ/inv.

Loss Fraction 1.00 % at STC



**PVsyst V7.2.12**

VCO, Simulation date:  
 23/03/22 16:41  
 with v7.2.12

ARATO SRL (Italy)

**Horizon definition**

Horizon from PVGIS website API, Lat=37°30'36', Long=14°35'52', Alt=289m

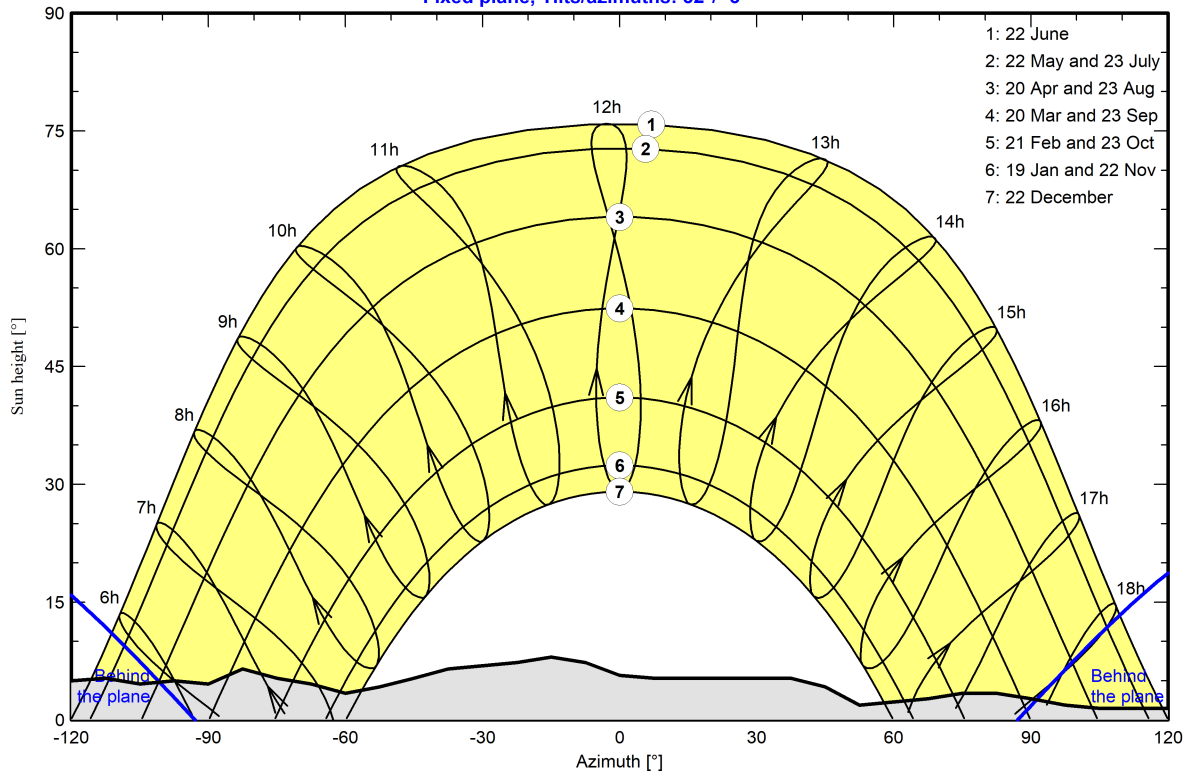
Average Height 3.9 °      Albedo Factor 0.72  
 Diffuse Factor 0.96      Albedo Fraction 100 %

**Horizon profile**

Azimuth [°]	-180	-173	-158	-150	-143	-135	-128	-120	-113	-105	-98	-90	-83	-75
Height [°]	2.7	3.1	3.8	4.6	3.4	2.7	4.2	5.0	5.3	4.6	5.0	4.6	6.5	5.3
Azimuth [°]	-68	-60	-53	-45	-38	-30	-23	-15	-8	0	8	38	45	53
Height [°]	4.6	3.4	4.2	5.3	6.5	6.9	7.3	8.0	7.3	5.7	5.3	5.3	4.2	1.9
Azimuth [°]	60	68	75	83	90	98	105	135	143	150	158	173	180	
Height [°]	2.3	2.7	3.4	3.4	2.7	1.9	1.5	1.5	1.1	1.1	1.5	1.5	2.7	

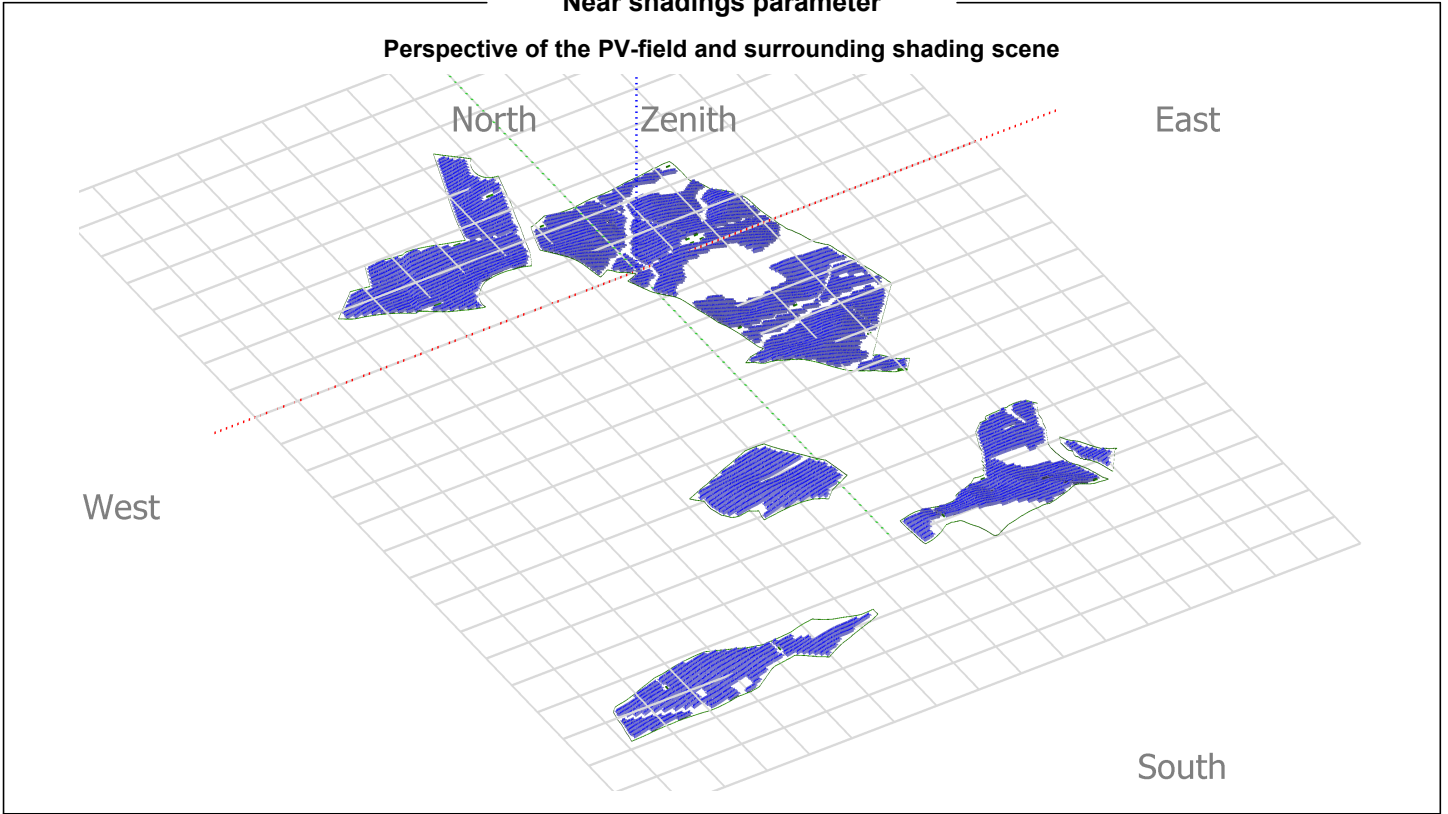
**Sun Paths (Height / Azimuth diagram)**

Fixed plane, Tilts/azimuths: 32°/ -3°





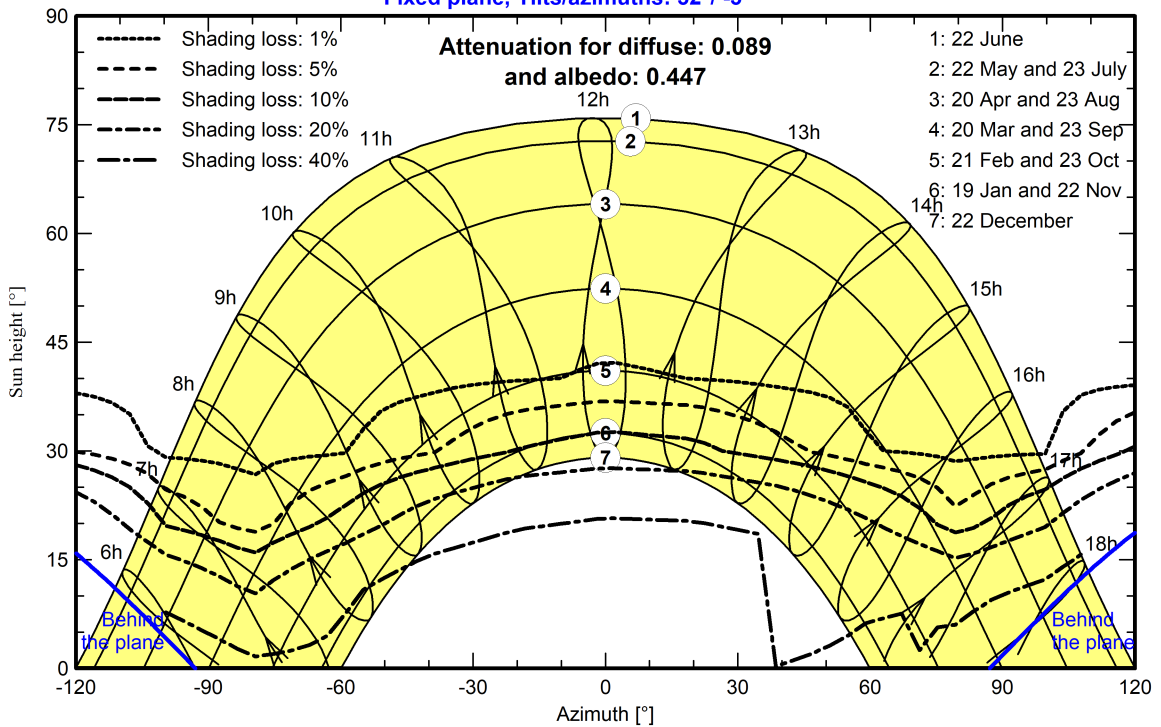
### Near shadings parameter



### Iso-shadings diagram

#### Orientation #1

Fixed plane, Tilts/azimuths: 32°/-3°





**PVsyst V7.2.12**

VC0, Simulation date:  
 23/03/22 16:41  
 with v7.2.12

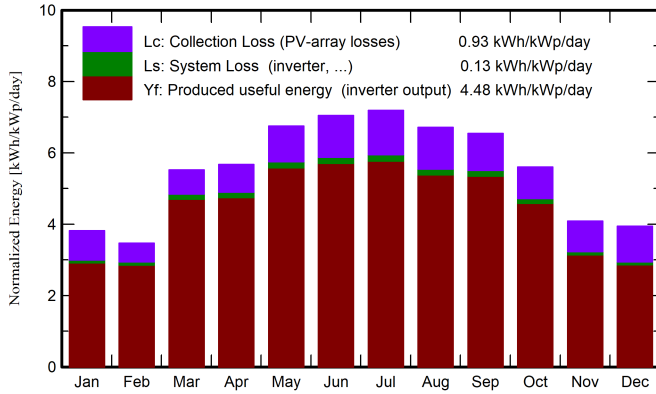
ARATO SRL (Italy)

**Main results**

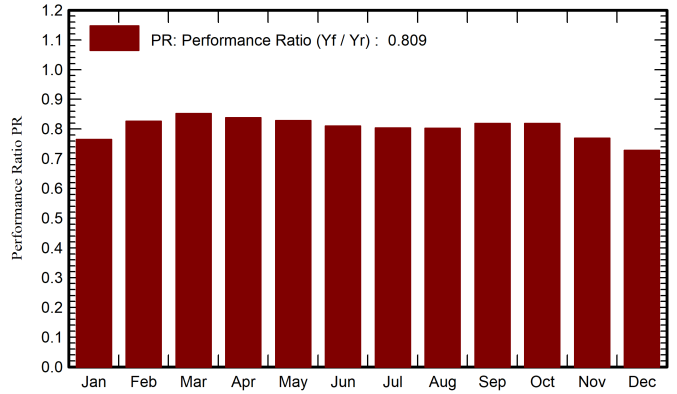
**System Production**

Produced Energy **61 GWh/year**      Specific production **1636 kWh/kWp/year**  
 Performance Ratio PR **80.86 %**

**Normalized productions (per installed kWp)**



**Performance Ratio PR**



**Balances and main results**

	<b>GlobHor</b> kWh/m <sup>2</sup>	<b>DiffHor</b> kWh/m <sup>2</sup>	<b>T_Amb</b> °C	<b>GlobInc</b> kWh/m <sup>2</sup>	<b>GlobEff</b> kWh/m <sup>2</sup>	<b>EArray</b> GWh	<b>E_Grid</b> GWh	<b>PR</b> ratio
<b>January</b>	74.2	31.84	5.85	118.3	99.9	3.442	3.346	0.765
<b>February</b>	72.8	40.94	4.54	97.0	86.2	3.054	2.964	0.826
<b>March</b>	140.7	58.51	7.87	171.1	159.8	5.558	5.397	0.852
<b>April</b>	159.7	67.25	13.05	170.2	159.6	5.442	5.277	0.838
<b>May</b>	214.3	78.44	17.43	209.2	197.2	6.601	6.409	0.828
<b>June</b>	227.6	70.77	23.09	211.5	200.0	6.531	6.339	0.810
<b>July</b>	234.9	65.96	25.31	222.8	211.2	6.822	6.626	0.804
<b>August</b>	200.6	62.39	25.33	208.2	197.3	6.365	6.180	0.802
<b>September</b>	165.7	55.83	20.81	196.2	185.5	6.120	5.943	0.819
<b>October</b>	126.5	43.45	15.54	173.7	161.1	5.416	5.260	0.818
<b>November</b>	79.0	32.23	9.08	122.6	105.3	3.591	3.488	0.769
<b>December</b>	72.3	30.73	5.63	122.2	98.6	3.383	3.292	0.728
<b>Year</b>	1768.4	638.34	14.52	2023.1	1861.8	62.325	60.520	0.809

**Legends**

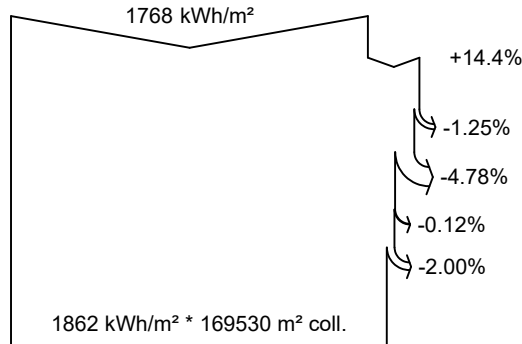
- GlobHor Global horizontal irradiation
- DiffHor Horizontal diffuse irradiation
- T\_Amb Ambient Temperature
- GlobInc Global incident in coll. plane
- GlobEff Effective Global, corr. for IAM and shadings
- EArray Effective energy at the output of the array
- E\_Grid Energy injected into grid
- PR Performance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



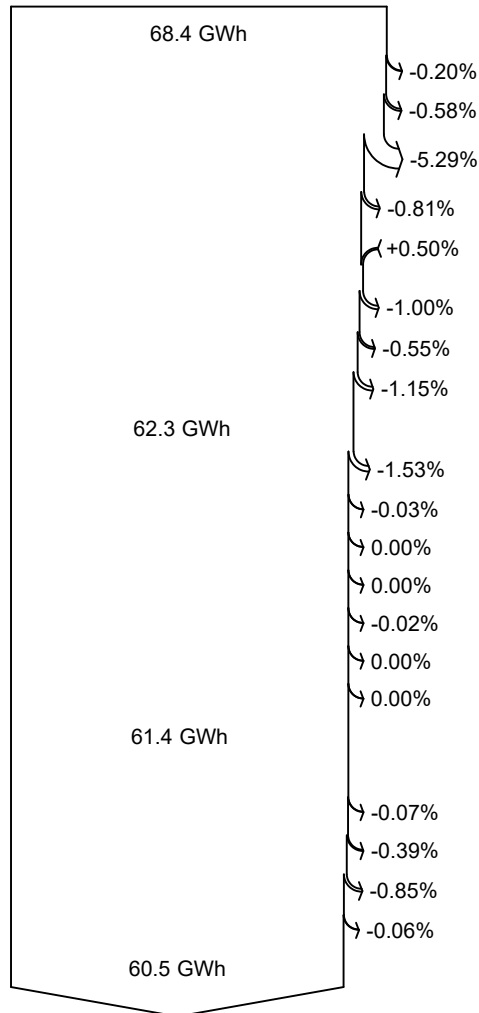
**PVsyst V7.2.12**

VC0, Simulation date:  
 23/03/22 16:41  
 with v7.2.12

**Loss diagram**



efficiency at STC = 21.66%



**Global horizontal irradiation**

**Global incident in coll. plane**

Far Shadings / Horizon

Near Shadings: irradiance loss

IAM factor on global

Soiling loss factor

**Effective irradiation on collectors**

PV conversion

**Array nominal energy (at STC effic.)**

Module Degradation Loss ( for year #1)

PV loss due to irradiance level

PV loss due to temperature

Shadings: Electrical Loss acc. to strings

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**

Auxiliaries (fans, other)

AC ohmic loss

Medium voltage transfo loss

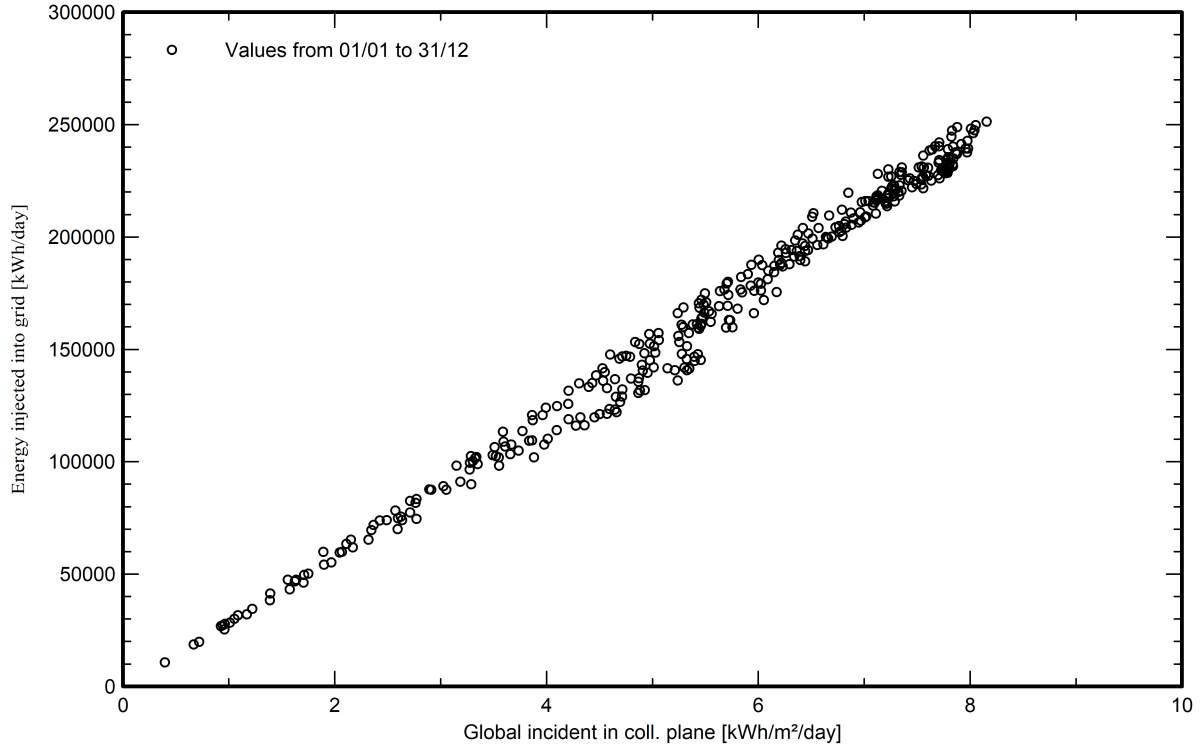
MV line ohmic loss

**Energy injected into grid**



Special graphs

Daily Input/Output diagram



System Output Power Distribution

