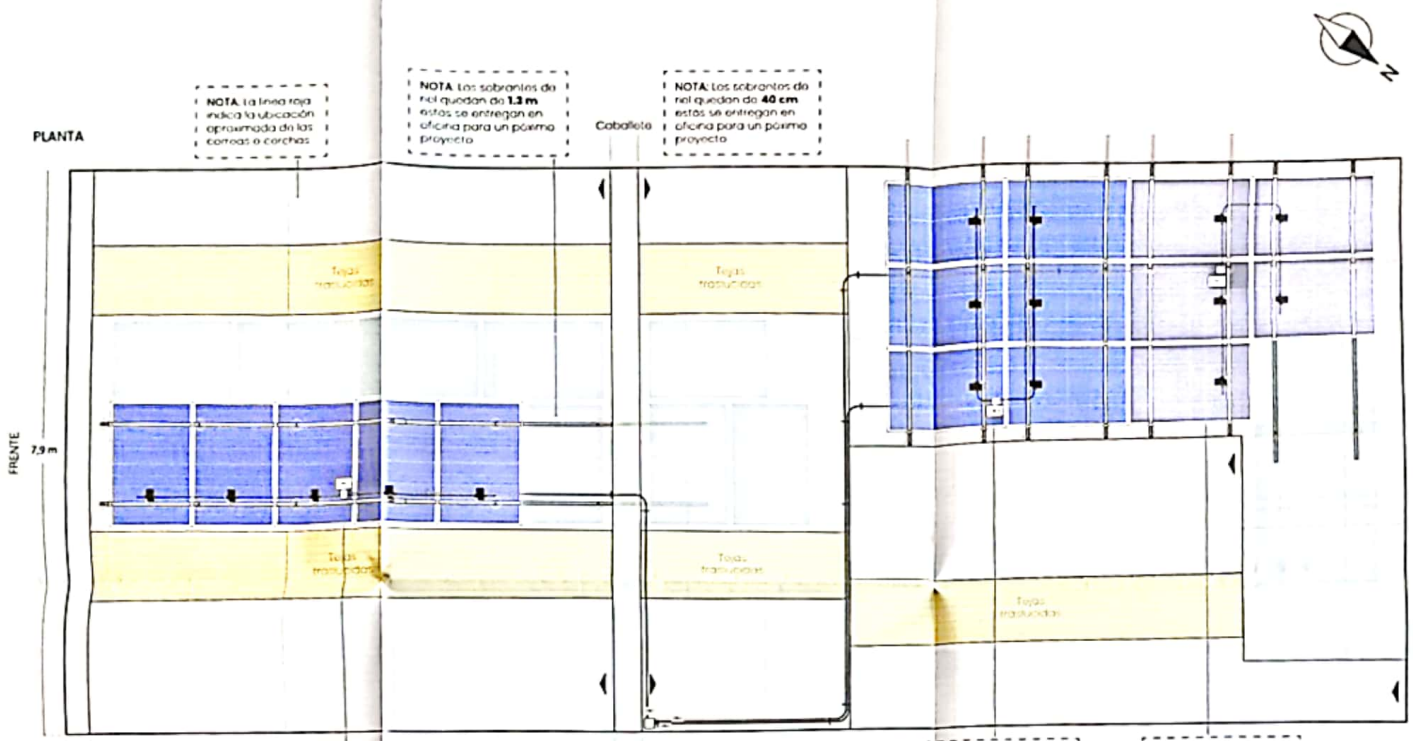
PLANTA



MATERIALES			REFERENCIAS
□	Caja de halado	1	
-	JBOX	3	
—	RIELES	12	SOEN/Energitel
▬	UNION RIEL	2	SOEN/Energitel
—	TUBOS	11	Tubo de 3 metros 1/2"
⌋	CURVAS	5	1/2"
▫	MIDCLAMP	22	SOEN/Energitel 30 mm
▫	ENDCLAMP	20	SOEN/Energitel 30 mm
▬	MODULOS FV	32	420W JAM54S30 420/LR
●	MICROS	32	Enphase IQ7+
•	SOLAR FASTENER	36	SOEN 100/200 mm 95/75 m

DATOS GENERALES						
NIU				CIRCUITOS	3	
ACOMETIDA	TRIFÁSICO			SUBPANEL		
ELECTRIFICADORA	Enel			DISTANCIAS	CAJA DE HALADO AL SUBPANEL	8.0 m Cable #12
POTENCIA	13,20 kWp				SUBPANEL AL PUNTO DE CONEXÓN	2.0 m Cable #10
TUBERIA CTO 1	2.7	8.2 m	#12	1/2"	OBSERVACIONES GENERALES	
TUBERIA CTO 2	3.3	10.0 m	#12	1/2"		
TUBERIA CTO 3	5.3	16.1 m	#12	1/2"		
TUBERIA CTO 4						
TUBERIA CTO 5						
TUBERIA CTO 6						
TUBERIA CTO 7						

PROYECTISTA

Gimecol Solar

ENPHASE

CARRERA 24 N°63-35, BARRANCABERMEJA / SANTANDER

CONTENIDO:

DISPOSICIÓN DE MÓDULOS PROYECTOS ALCALDIA A.N. **CALZADOS OTELO**

UBICACIÓN:

Cra 24G # 18-67

BOGOTÁ-CUNDINAMARCA

PROYECTO:

PLANTA SOLAR **ENPHASE**

Sistema microinversores interconectados

DISEÑÓ:

GIMECOL SOLAR S.A.S

INGENIERO RESPONSABLE:

ING. JULIO DARIO FUENTES

FECHA:	DIRECTOR PROYECTO:
07/04/2024	ING. JULIO DARIO FUENTES
FECHA EMISIÓN:	DISEÑÓ:
02/05/2024	DI JULIO FUENTES C
REVISÓ:	FORMATO Y TAMAÑO:
ING. JULIO DARIO FUENTES	ISO A2 (594mm x 420mm)

MODIFICACIÓN EN REVISIONES

ID	DESCRIPCIÓN	FECHA

NOTAS GENERALES Y/O OBSERVACIONES

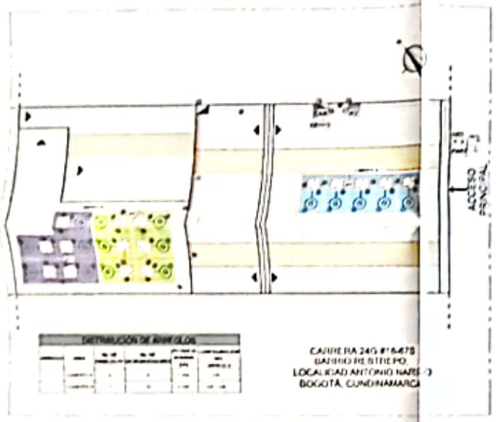
1. TEJAS MASTER MIL
2. 11 TUBOS
3. DEJAR LOS ESPACIOS PARA AMPLIACIONES FUTURAS EN LA CUBIERTA (LOS MÓDULOS QUE ESTAN CON TRANSPARENCIA)
4. DEJAR LIBRES LAS TEJAS TRASLUCIDAS

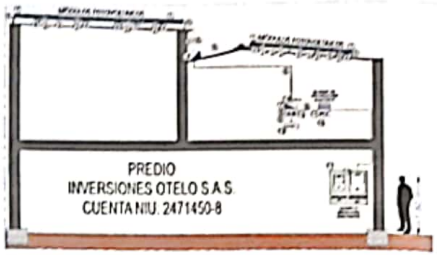
FIRMA APROBACIÓN:

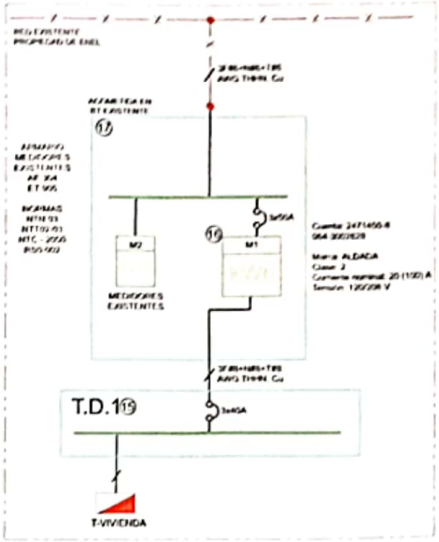
ING. JULIO DARIO FUENTES

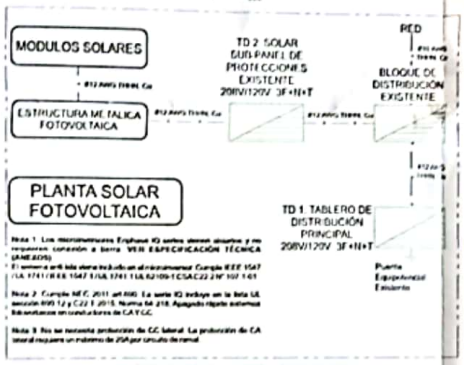
CODIGO DE PROYECTO:	ESCALA:
ANBA_191	SIN
N° DE PLANO:	REVISIÓN:
01_01	

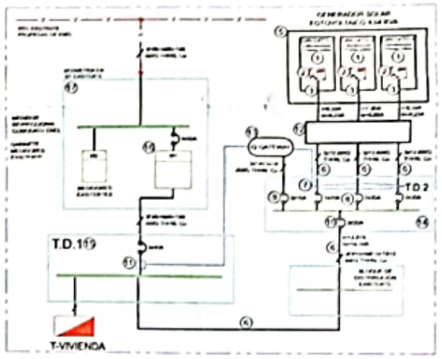
CARRERA 24 G #18-67 SUR, BARRIO RESTREPO,
LOCALIDAD ANTONIO NARIÑO
BOGOTA, CUNDINAMARCA
LOCALIZACIÓN N: (4.586474) - O: (-74.105720)











Version 7.3.2

PVsyst - Simulation report

Grid-Connected System

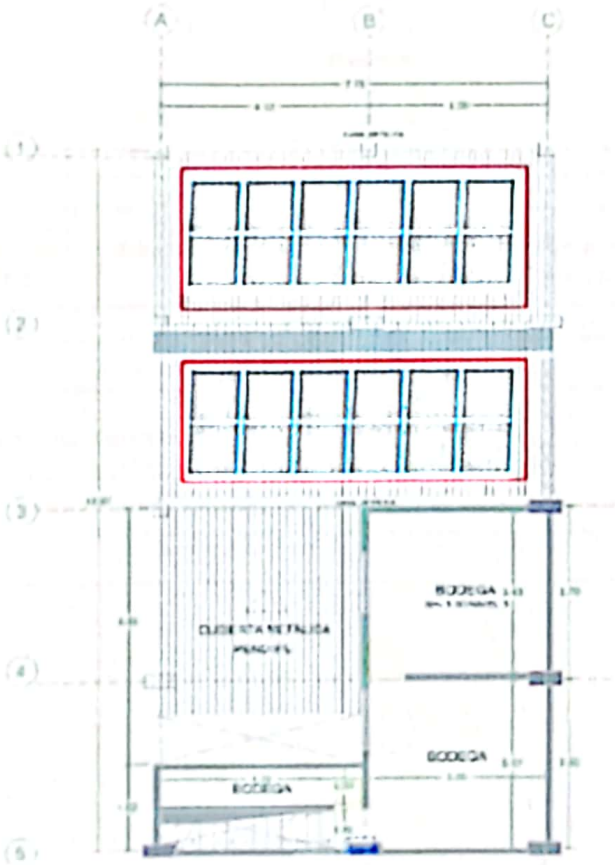
Proyecto: INVERSIONES OTELO Evento148176

Variant: Inversiones Otelo

Sin escena 3D definida, sin sombras, Localidad Antonio Nariñ

System power: 6.40 kWp

Santiago Pérez - Colombia



JULIO DARÍO FUENTES
GIMECOL SOLAR (Colombia)

Gimecol Solar

Project summary

Geographical Site
Santiago Pérez
Colombia

Situation

Latitude	4.59 °N
Longitude	-74.11 °W
Altitude	2585 m
Time zone	UTC-5

Project settings
Albedo 0.20

Meteo data
Santiago Pérez
Meteonorm 8.1 (2016-2021), Sat=100% - Sintético

System summary

Grid-Connected System

Sin escena 3D definida, sin sombras, Localidad Antonio Nariñ

PV Field Orientation
Fixed plane
Tilt/Azimuth 15 / 45 °

Near Shadings
No Shadings

User's needs
Monthly values

System information

PV Array		Inverters	
Nb. of modules	16 units	Nb. of units	16 units
Pnom total	6.40 kWp	Pnom total	4640 W
		Pnom ratio	1.379

Results summary

Produced Energy	9121.16 kWh/year	Specific production	1425 kWh/kWp/year	Perf. Ratio PR	83.80 %
Used Energy	16750.00 kWh/year			Solar Fraction SF	33.89 %

Table of contents

General parameters

Grid-Connected System — **Sin escena 3D definida, sin sombras, Localidad Antonio Nariño**

PV Field Orientation

Orientation		Sheds configuration	Models used	
Fixed plane		No 3D scene defined	Transposition	Perez
Tilt/Azimuth	15 / 45 °		Diffuse	Perez, Meteonorm
			Circumsolar	separate

Horizon
Free Horizon

Near Shadings
No Shadings

User's needs
Monthly values

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	
1.50	0.90	1.20	1.40	0.80	1.30	1.35	1.40	1.30	1.80	1.70	2.10	16.8	MWh/mth

PV Array Characteristics

PV module

Manufacturer	JA solar
Model	JAM72-S03-400-PR
(Original PVsyst database)	
Unit Nom. Power	400 Wp
Number of PV modules	16 units
Nominal (STC)	6.40 kWp
Modules	16 Strings x 1 In series
At operating cond. (50°C)	
Pmpp	5.82 kWp
U mpp	37 V
I mpp	158 A

Inverter

Manufacturer	Enphase
Model	IQ7PLUS-72-x-208
(Original PVsyst database)	
Unit Nom. Power	0.290 kWac
Number of inverters	16 units
Total power	4.6 kWac
Operating voltage	16-48 V
Max. power (=>60°C)	0.300 kWac
Pnom ratio (DC:AC)	1.38

Total PV power

Nominal (STC)	6 kWp
Total	16 modules
Module area	32.1 m²
Cell area	28.8 m²

Total inverter power

Total power	4.6 kWac
Max. power	4.8 kWac
Number of inverters	16 units
Pnom ratio	1.38

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. 3.9 mΩ
Loss Fraction 1.5 % at STC

Module Quality Loss
Loss Fraction -0.8 %

Module mismatch losses
Loss Fraction 0.0 % 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

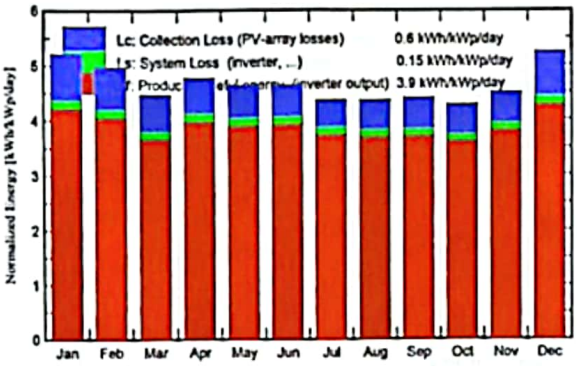
PVsyst V7.3.2
VC4, Simulation date:
14/04/23 12:13
with v7.3.2

Main results

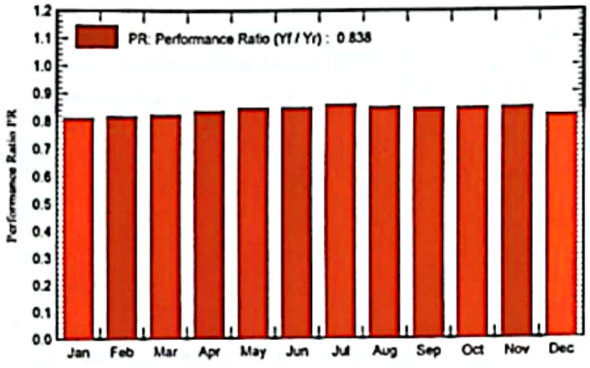
System Production

Produced Energy	9121.16 kWh/year	Specific production	1425 kWh/kWp/year
Used Energy	16750.00 kWh/year	Performance Ratio PR	83.80 %
		Solar Fraction SF	33.89 %

Normalized productions (per installed kWp)



Performance Ratio PR



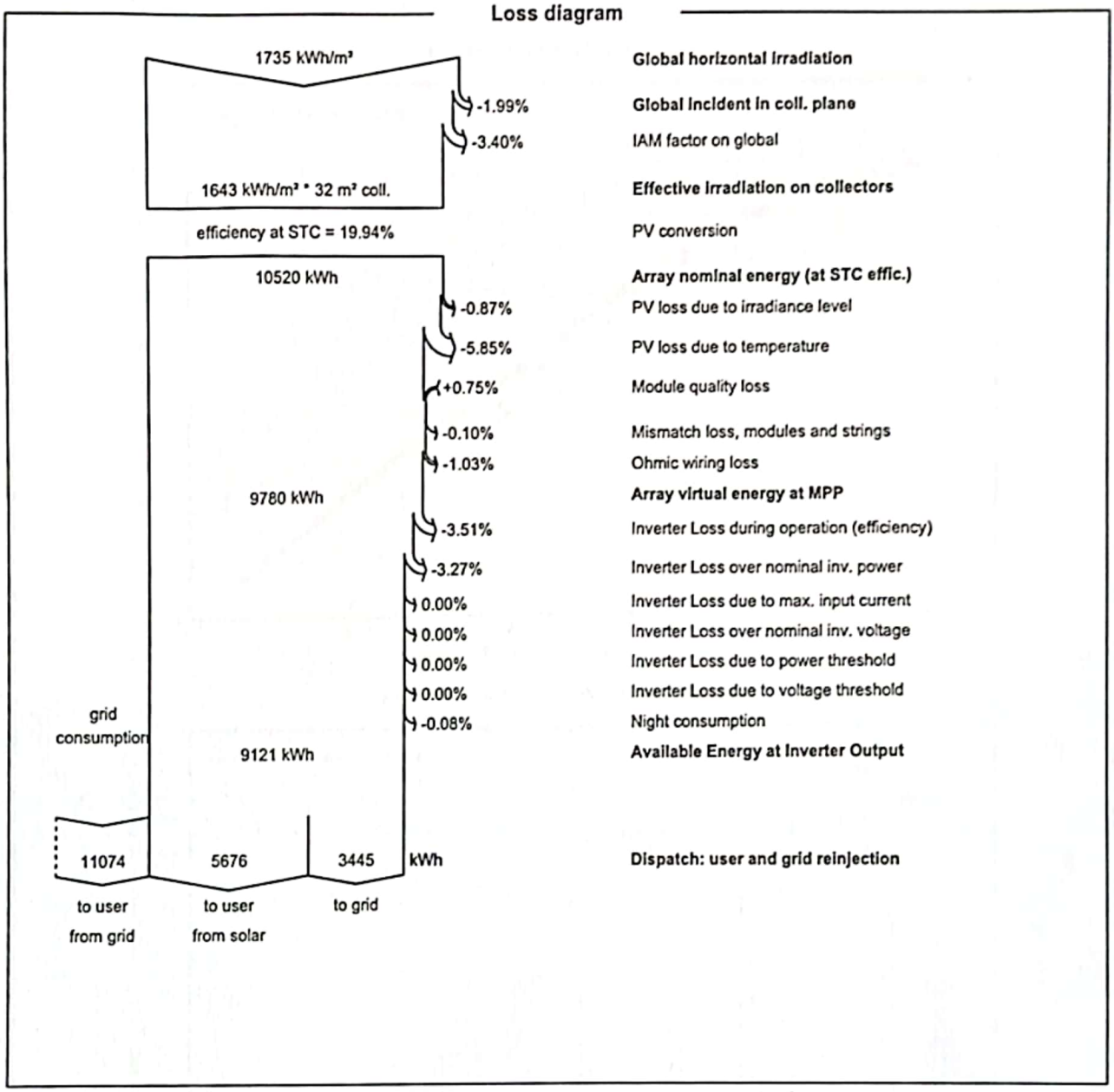
Balances and main results

	GlobHor kWh/m²	DiffHor kWh/m²	T_Amb °C	GlobInc kWh/m²	GlobEff kWh/m²	EArray kWh	E_User kWh	E_Solar kWh	E_Grid kWh	EFrGrid kWh
January	153.1	66.82	13.20	161.6	156.7	873.5	1500	513.9	327.3	986
February	134.1	54.79	13.51	139.3	135.2	759.4	900	338.3	392.5	562
March	140.4	68.68	13.75	139.1	134.4	763.5	1200	421.5	313.2	778
April	149.7	65.85	13.78	143.8	139.2	802.0	1400	470.7	301.2	929
May	156.4	66.82	13.95	144.2	138.9	813.5	800	315.0	468.5	485
June	152.9	64.20	13.49	139.7	134.0	789.0	1300	466.8	293.0	833
July	148.6	67.87	13.58	135.5	129.8	775.1	1350	466.9	279.5	883
August	146.3	77.54	13.51	135.2	129.9	763.5	1400	482.2	253.1	918
September	135.6	67.51	13.18	132.1	128.0	741.8	1300	451.2	263.0	849
October	132.6	78.29	13.44	132.8	128.4	746.3	1800	558.8	160.3	1241
November	132.6	68.57	13.40	135.1	130.6	760.9	1700	532.4	200.5	1168
December	153.2	65.76	13.37	162.5	157.8	883.7	2100	658.7	192.7	1441
Year	1735.4	812.69	13.51	1700.8	1642.9	9472.1	16750	5676.3	3444.9	11074

Legends

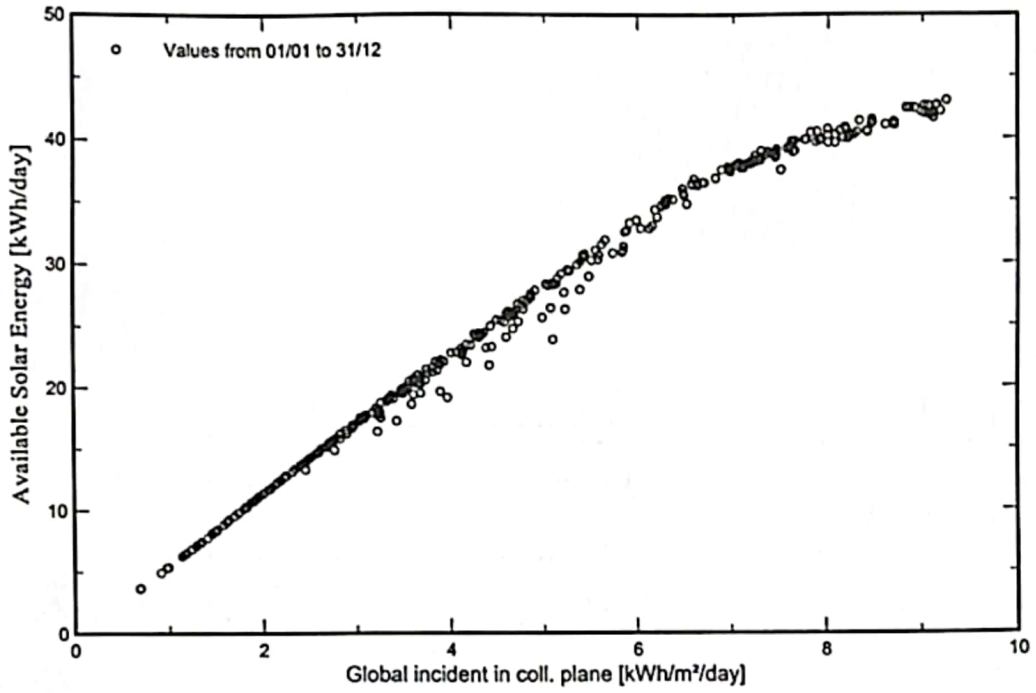
GlobHor	Global horizontal irradiation	EArray	Effective energy at the output of the array
DiffHor	Horizontal diffuse irradiation	E_User	Energy supplied to the user
T_Amb	Ambient Temperature	E_Solar	Energy from the sun
GlobInc	Global incident in coll. plane	E_Grid	Energy injected into grid
GlobEff	Effective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

Loss diagram

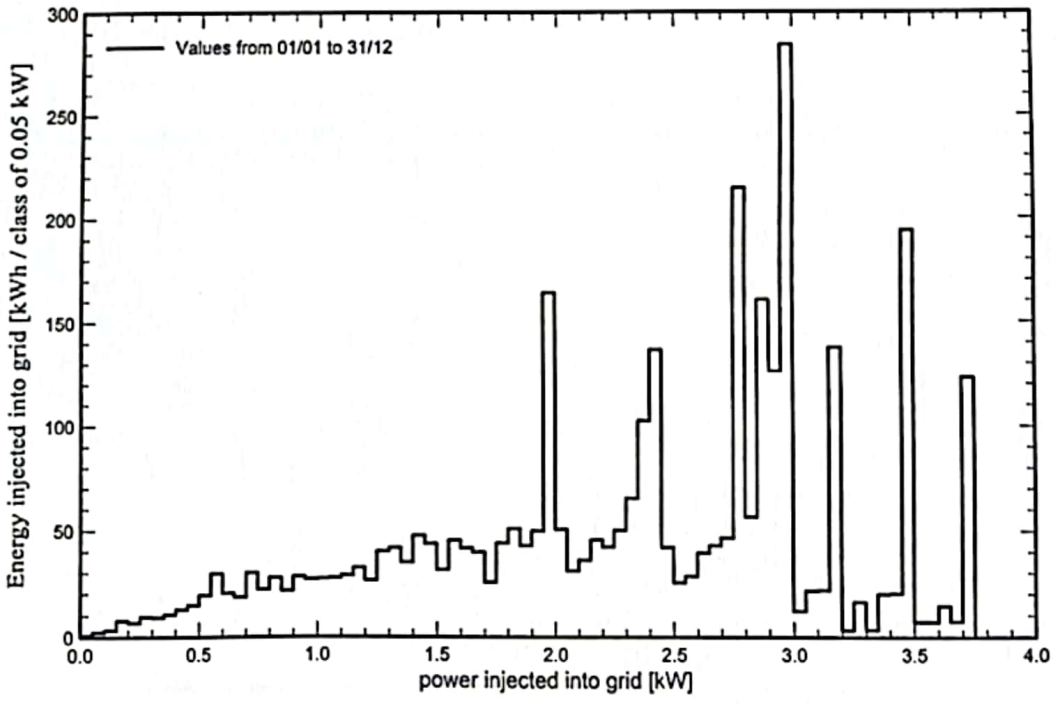


Predef. graphs

Diagrama entrada/salida diaria

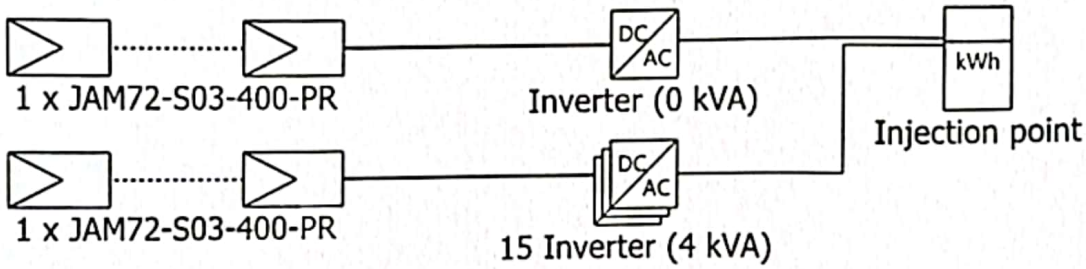


Distribución de potencia de salida del sistema



Single-line diagram

PVsyst V7.3.2
VC4, Simulation date:
14/04/23 12:13
with v7.3.2



PV module	JAM72-S03-400-PR
Inverter	IQ7PLUS-72-x-208
String	1 x JAM72-S03-400-PR

	CREACIONES MONACHITOS SAS Evento148176	GIMECOL SOLAR (Colombia)
	VC4 : Inversiones Otelo	14/04/23