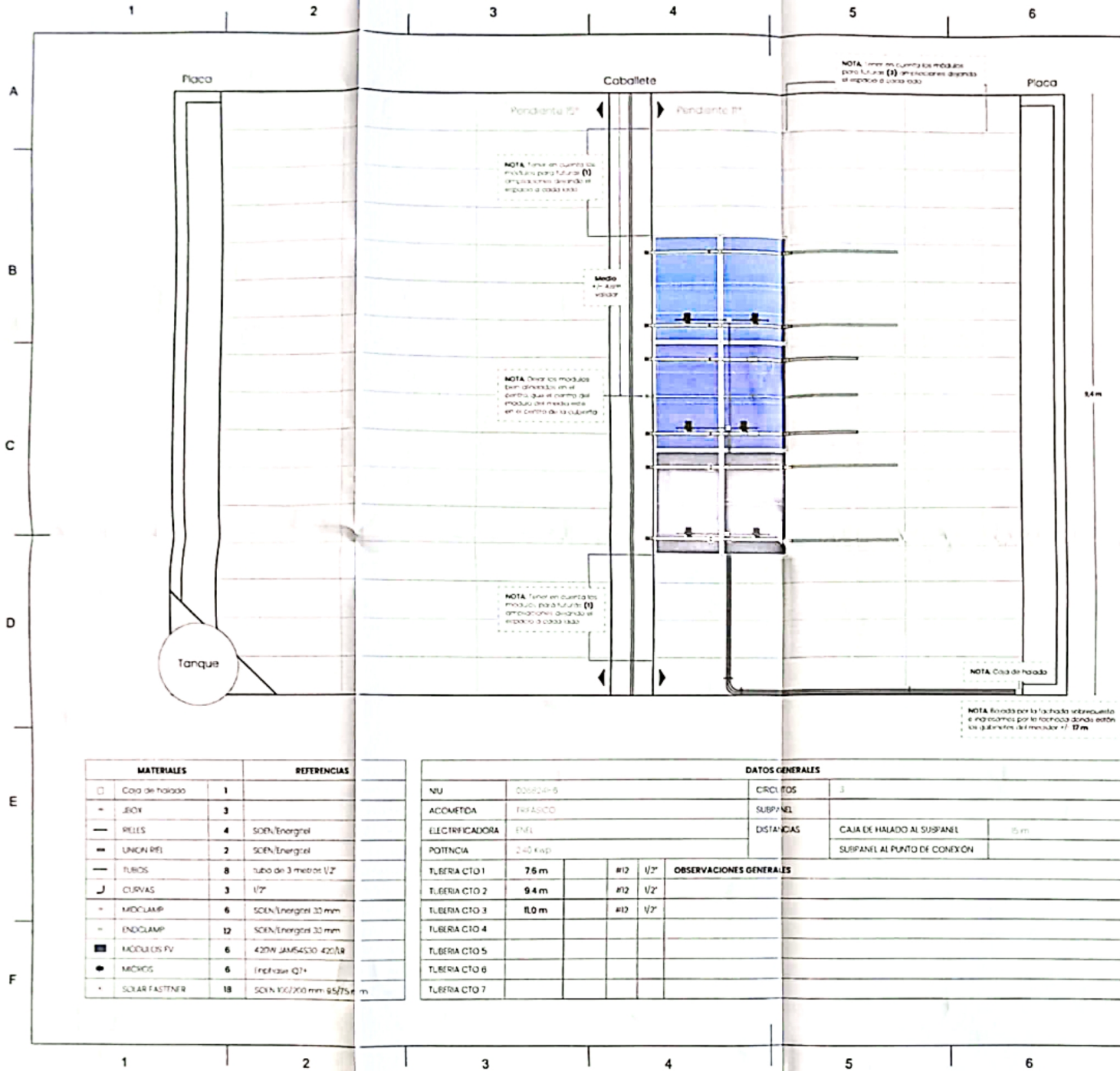




PROYECTISTA
Gimecol Solar
ENPHASE

CARRERA 24 N°63-35, BARRANCABERMEJA / SANTANDER

CONTENIDO:

DISPOSICIÓN DE MÓDULOS
PROYECTOS ALCALDIA A.N.
CREACIONES MONACHITOS

UBICACIÓN:

CRA 12a 4-21 SUR
BOGOTÁ-CUNDINAMARCA

PROYECTO:

PLANTA SOLAR **ENPHASE**
Sistema microinversores interconectados

DISEÑO:

GIMECOL SOLAR S.A.S

INGENIERO RESPONSABLE:

ING. JULIO DARIO FUENTES

FECHA: 16/04/2024

DIRECTOR PROYECTO: ING. JULIO DARIO FUENTES

FECHA EMISIÓN: 12/04/2024

DISEÑO: DI JULIO FUENTES C

REVISÓ: ING. JULIO DARIO FUENTES

FORMATO Y TAMAÑO: ISO A2 (594mm x 420mm)

MODIFICACIÓN EN REVISIONES

ID	DESCRIPCIÓN	FECHA
1		
2		
3		
4		
5		

NOTAS GENERALES Y/O OBSERVACIONES

- Se sugiere al propietario revisar y validar el estado de la cubierta, y ver la viabilidad de cambiar las tejas.
- El tejado está en mal estado, hay que tener cuidado con el techo para caminar y no hacer.
- Revisar la alineación de los módulos.

FIRMA APROBACIÓN:

ING. JULIO DARIO FUENTES

CÓDIGO DE PROYECTO: ANMO_186

ESCALA: SIN

N° DE PLANO: 01_01

REVISIÓN:

A

B

C

D

E

F

PVsyst - Simulation report

Grid-Connected System

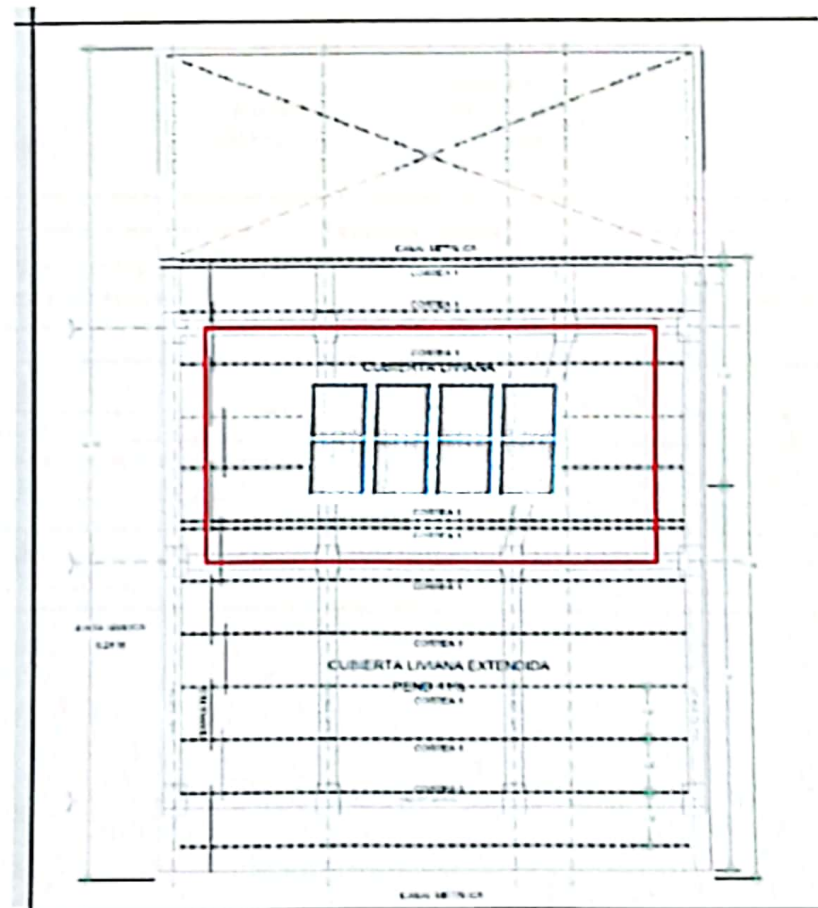
Proyecto: CREACIONES MONACHITOS SAS Evento148176

Variant: Creaciones Monachitos

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

System power: 2400 Wp

Santiago Pérez - Colombia



JULIO DARÍO FUENTES
GIMECOL SOLAR (Colombia)



Gimecol Solar



PVsyst V7.3.2

VC3, Simulation date:
14/04/23 11:21
with v7.3.2

Project: GRUPO LÍNEA BARBARELLA Evento148176

Variant: Creaciones Monachitos

GIMECOL SOLAR (Colombia)

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

Nb. of modules 6 units
Pnom total 2400 Wp

Inverters

Nb. of units 6 units
Pnom total 1740 W
Pnom ratio 1.379

Results summary

Produced Energy	3420.44 kWh/year	Specific production	1425 kWh/kWp/year	Perf. Ratio PR	83.80 %
Used Energy	3215.00 kWh/year			Solar Fraction SF	39.55 %

Table of contents

Cover page	1
Project and results summary	2
General parameters, PV Array Characteristics, System losses	3
Main results	4
Loss diagram	5
Predef. graphs	6
Single-line diagram	7



General parameters

Grid-Connected System

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

PV Field Orientation

Orientation

Fixed plane

Tilt/Azimuth 15 / 45 °

Sheds configuration

No 3D scene defined

Models used

Transposition

Perez

Diffuse

Perez, Meteorom

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	
210	280	285	200	205	210	200	205	250	560	320	290	3215	kWh/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

6 units

Nominal (STC)

2400 Wp

Modules

6 Strings x 1 In series

At operating cond. (50°C)

Pmpp

2184 Wp

U mpp

37 V

I mpp

59 A

Total PV power

Nominal (STC)

2.40 kWp

Total

6 modules

Module area

12.0 m²

Cell area

10.8 m²

Inverter

Manufacturer

Enphase

Model

IQ7PLUS-72-x-208

(Original PVsyst database)

Unit Nom. Power

0.290 kWac

Number of Inverters

6 units

Total power

1.7 kWac

Operating voltage

16-48 V

Max. power (≥60°C)

0.300 kWac

Pnom ratio (DC:AC)

1.38

Total inverter power

Total power

1.7 kWac

Max. power

1.8 kWac

Number of inverters

6 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.

10 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



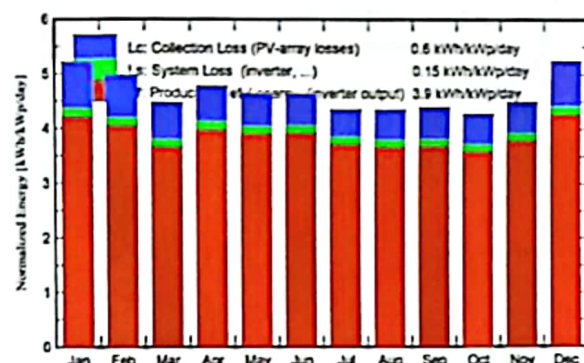
Main results

System Production

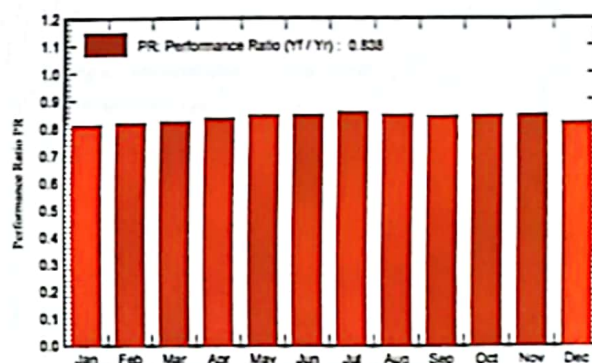
Produced Energy 3420.44 kWh/year
Used Energy 3215.00 kWh/year

Specific production 1425 kWh/kWp/year
Performance Ratio PR 83.80 %
Solar Fraction SF 39.55 %

Normalized productions (per installed kWp)



Performance Ratio PR



Balances and main results

	GlobHor	DiffHor	T_Amb	GlobInc	GlobEff	EArray	E_User	E_Solar	E_Grid	EFrGrid
	kWh/m²	kWh/m²	°C	kWh/m²	kWh/m²	kWh	kWh	kWh	kWh	kWh
January	153.1	66.82	13.20	161.6	156.7	327.5	210.0	85.7	229.7	124.3
February	134.1	54.79	13.51	139.3	135.2	284.8	280.0	109.6	164.5	170.4
March	140.4	68.68	13.75	139.1	134.4	286.3	285.0	113.8	161.8	171.2
April	149.7	65.85	13.78	143.8	139.2	300.7	200.0	84.4	205.1	115.6
May	156.4	66.82	13.95	144.2	138.9	305.1	205.0	86.1	207.7	118.9
June	152.9	64.20	13.49	139.7	134.0	295.9	210.0	91.3	193.6	118.7
July	148.6	67.87	13.58	135.5	129.8	290.7	200.0	85.5	194.4	114.5
August	146.3	77.54	13.51	135.2	129.9	286.3	205.0	87.4	188.3	117.6
September	135.6	67.51	13.18	132.1	128.0	278.2	250.0	102.2	165.6	147.8
October	132.6	78.29	13.44	132.8	128.4	279.9	560.0	188.6	81.0	371.4
November	132.6	68.57	13.40	135.1	130.6	285.3	320.0	120.9	153.9	199.1
December	153.2	65.76	13.37	162.5	157.8	331.4	290.0	116.0	203.3	174.0
Year	1735.4	812.69	13.51	1700.8	1642.9	3552.0	3215.0	1271.6	2148.8	1943.4

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_User Energy supplied to the user

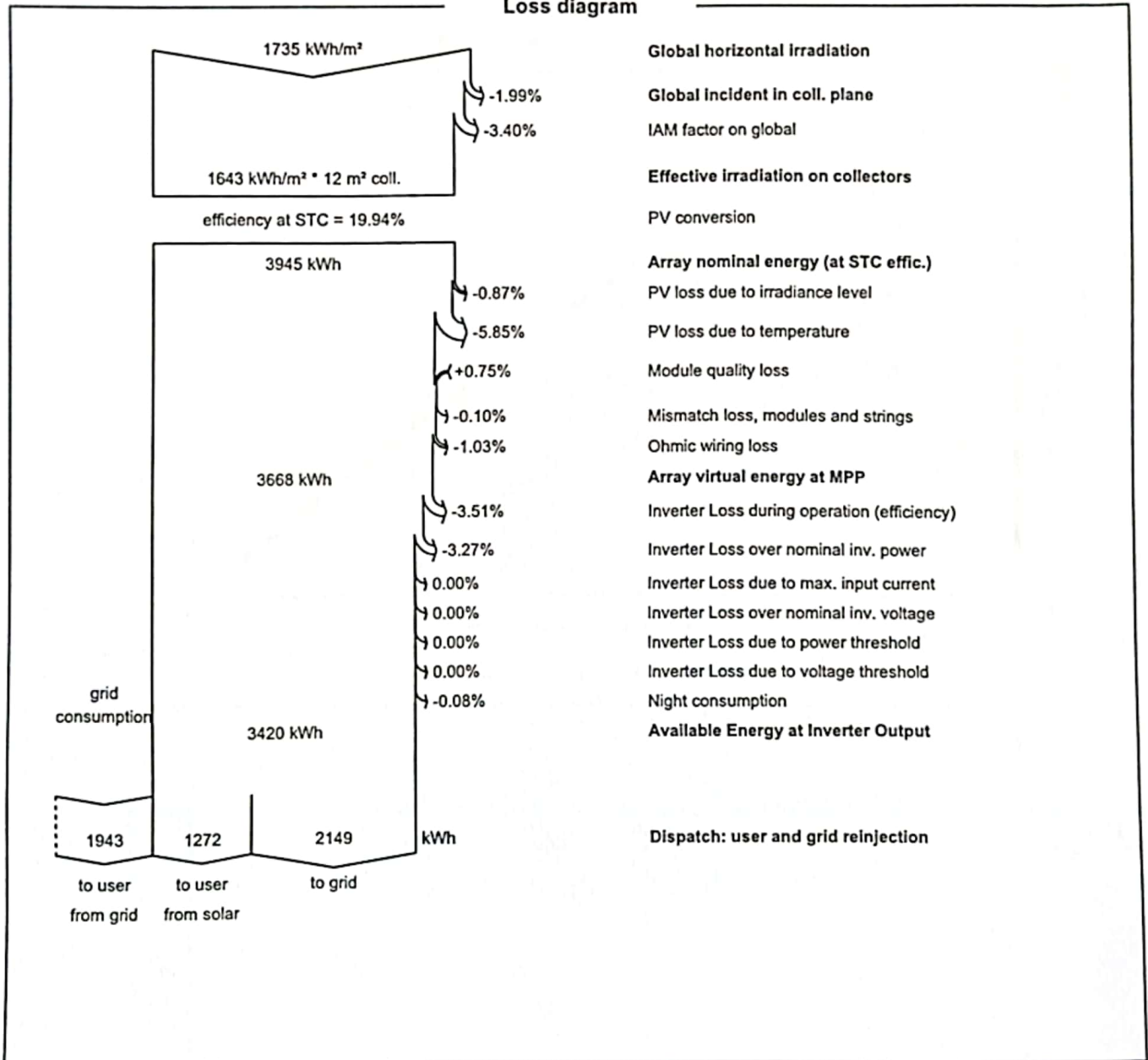
E_Solar Energy from the sun

E_Grid Energy injected into grid

EFrGrid Energy from the grid



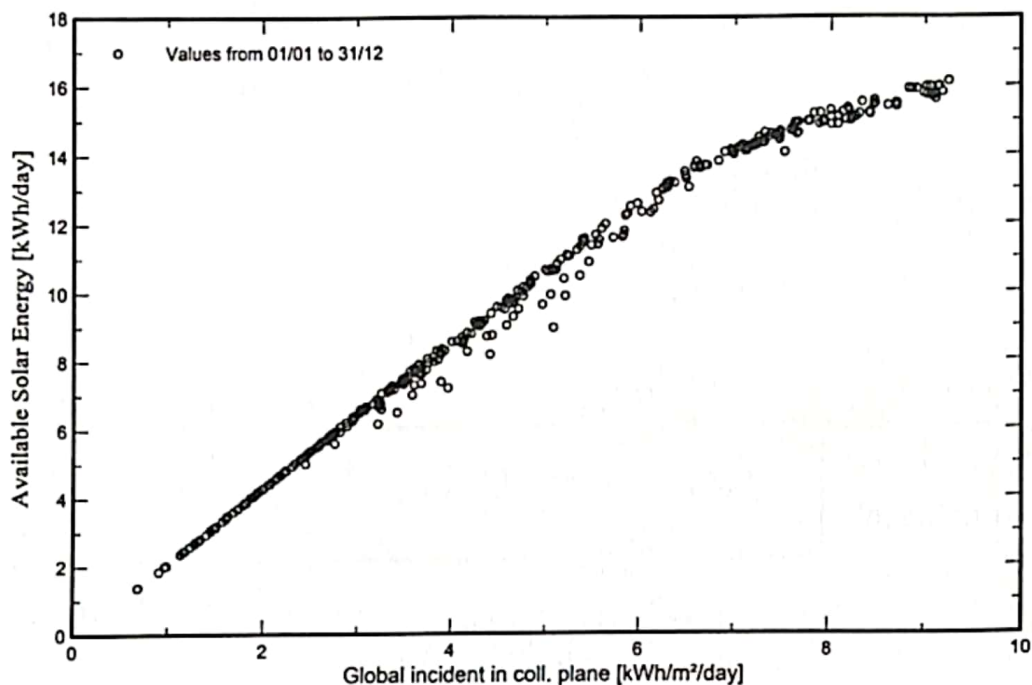
Loss diagram



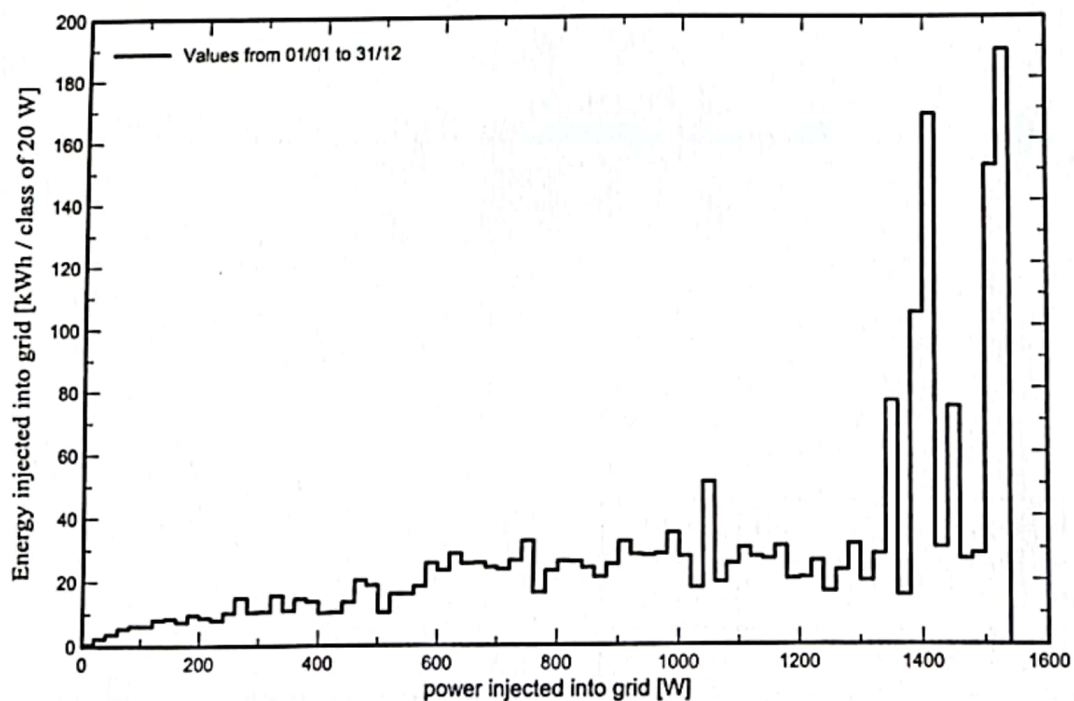


Predef. graphs

Diagrama entrada/salida diaria



Distribución de potencia de salida del sistema





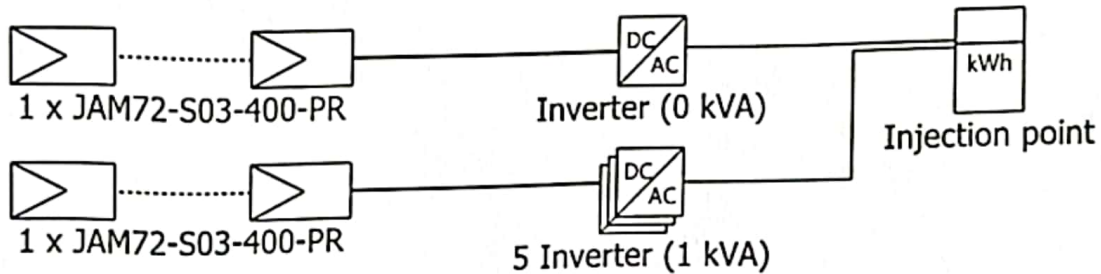
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with v7.3.2

Single-line diagram



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

GRUPO LÍNEA BARBARELLA Eve
nto148176

GIMECOL SOLAR (Colombia)

VC3 : Creaciones Monachitos

14/04/23