Version 7.4.8

PVsyst - Simulation report

Grid-Connected System

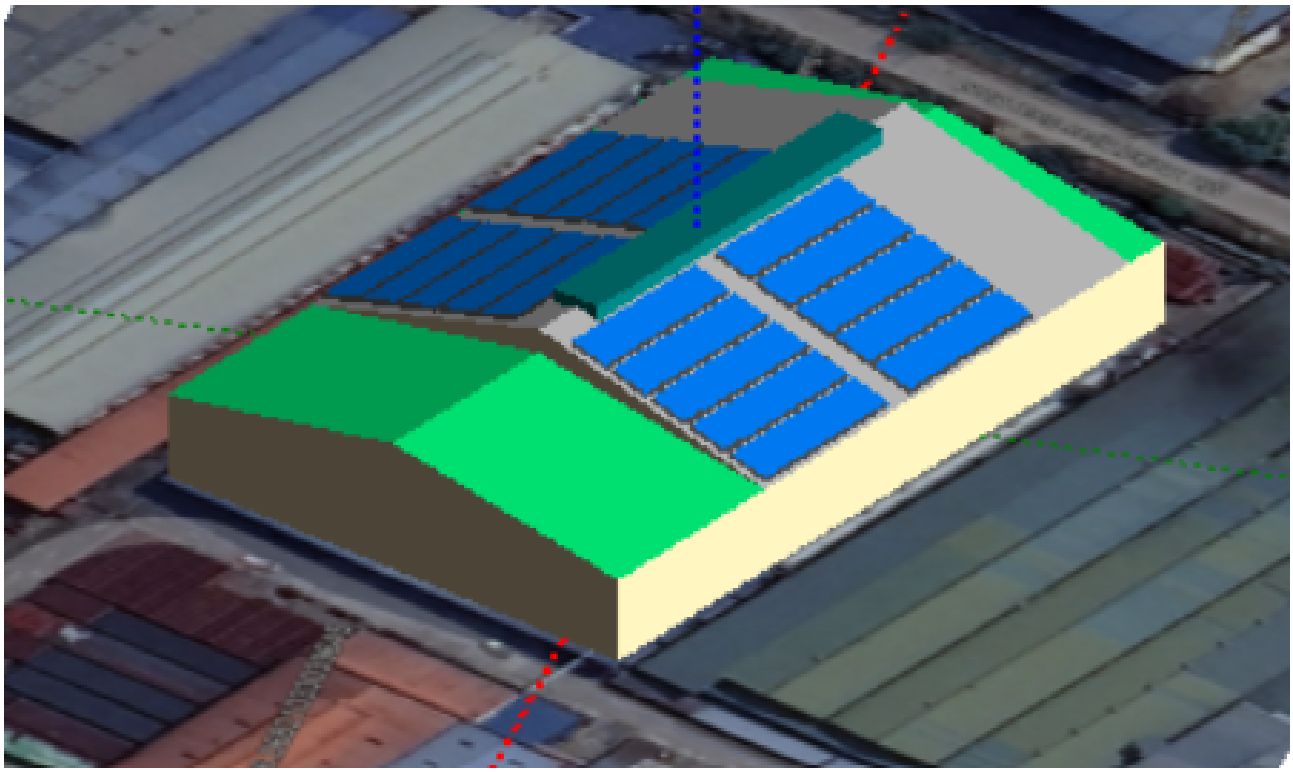
Project: Coca Cola Factory Myanmar

Variant: 421.2kWp On Grid Solar System Simulation

Sheds on a building

System power: 421 kWp

Coca Cola Factory - Myanmar



Coca Cola Myanmar

Bamaw Atwin Won Street, Yangon

Yangon

Myanmar

09777888999

Signature

Designed By

Htet Zarni Naing

09111222333

Signature

Project: Coca Cola Factory Myanmar (421.2kwp On Grid Solar System Design Project)

Variant: 421.2kwp On Grid Solar System Simulation

Project summary

Geographical Site
Coca Cola Factory
Myanmar

Situation

Latitude	16.86 °N
Longitude	96.07 °E
Altitude	15 m
Time zone	UTC+6.5

Project settings

Albedo	0.20

Weather data
Coca Cola Factory
Meteonorm 8.1 (1996-2015), Sat=100% - Synthetic

System summary

Grid-Connected System
Simulation for year no 10

Sheds on a building

PV Field Orientation

Fixed planes	2 orientations
Tilts/azimuths	15 / 23.7 ° 15 / -155.9 °

Near Shadings
Linear shadings : Fast (table)

User's needs
Monthly values

System information

PV Array

Nb. of modules	720 units
Pnom total	421 kWp

Inverters

Nb. of units	4 units
Pnom total	400 kWac
Grid power limit	300 kWac
Grid lim. Pnom ratio	1.404

Results summary

Produced Energy	493816 kWh/year	Specific production	1172 kWh/kWp/year	Perf. Ratio PR	71.97 %
Used Energy	264000 kWh/year			Solar Fraction SF	43.87 %
Apparent energy	377999 kVAh/year				

Table of contents

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General parameters

Grid-Connected System

Sheds on a building

PV Field Orientation

Orientation
Fixed planes 2 orientations
Tilts/azimuths 15 / 23.7 °
15 / -155.9 °

Sheds configuration
Nb. of sheds 20 units
Several orientations

Models used
Transposition Perez
Diffuse Perez, Meteonorm
Circumsolar separate

Horizon
Free Horizon

Near Shadings
Linear shadings : Fast (table)

User's needs
Monthly values

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	
22.0	20.0	25.0	20.0	25.0	23.0	22.0	20.0	23.0	21.0	23.0	20.0	264	MWh/mth

Grid injection point

Grid power limitation
Active power 300 kWac
Pnom ratio 1.404

Power factor
Cos(phi) (lagging) 1.000

PV Array Characteristics

PV module
Manufacturer Jinkosolar
Model JKM585M-7RL4-V
(Original PVsyst database)
Unit Nom. Power 585 Wp
Number of PV modules 720 units
Nominal (STC) 421 kWp

Inverter
Manufacturer Huawei Technologies
Model SUN2000-100KTL-M2
(Custom parameters definition)
Unit Nom. Power 100 kWac
Number of inverters 4 units
Total power 400 kWac

Array #1 - PV Array
Orientation #1
Tilt/Azimuth 15/24 °
Number of PV modules 360 units
Nominal (STC) 211 kWp
Modules 20 string x 18 In series
At operating cond. (50°C)
Pmpp 192 kWp
U mpp 725 V
I mpp 265 A

Number of inverters 20 * MPPT 10% 2 units
Total power 200 kWac
Operating voltage 200-1000 V
Max. power (=>33°C) 110 kWac
Pnom ratio (DC:AC) 1.05

Array #2 - Sub-array #2
Orientation #2
Tilt/Azimuth 15/-156 °
Number of PV modules 360 units
Nominal (STC) 211 kWp
Modules 20 string x 18 In series
At operating cond. (50°C)
Pmpp 192 kWp
U mpp 725 V
I mpp 265 A

Number of inverters 20 * MPPT 10% 2 units
Total power 200 kWac
Operating voltage 200-1000 V
Max. power (=>33°C) 110 kWac
Pnom ratio (DC:AC) 1.05

Total PV power
Nominal (STC) 421 kWp
Total 720 modules
Module area 1969 m²

Total inverter power
Total power 400 kWac
Number of inverters 4 units
Pnom ratio 1.05
Power sharing across orientations

Array losses

Array Soiling Losses
Loss Fraction 2.0 %

Thermal Loss factor
Module temperature according to irradiance
Uc (const) 15.0 W/m²K
Uv (wind) 0.0 W/m²K/m/s

LID - Light Induced Degradation
Loss Fraction 2.0 %

Module Quality Loss
Loss Fraction -0.8 %

Module mismatch losses
Loss Fraction 2.0 % at MPP

Strings Mismatch loss
Loss Fraction 0.0 %

Module average degradation
Year no 10
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): 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	0.962	0.892	0.816	0.681	0.440	0.000

Spectral correction
FirstSolar model
Precipitable water estimated from relative humidity

Coefficient Set	C0	C1	C2	C3	C4	C5
Monocrystalline Si	0.85914	-0.02088	-0.0058853	0.12029	0.026814	-0.001781

DC wiring losses

Global wiring resistance 10 mΩ
Loss Fraction 1.0 % at STC

Array #1 - PV Array
Global array res. 24 mΩ
Loss Fraction 0.8 % at STC

Array #2 - Sub-array #2
Global array res. 45 mΩ
Loss Fraction 1.5 % at STC

System losses

Unavailability of the system
Time fraction 0.8 %
3.0 days,
3 periods

Auxiliaries loss
constant (fans) 1000 W
1.0 kW from Power thresh.
Proportional to Power 1.0 W/kW
1.0 kW from Power thresh.
Night aux. cons. 1000 W

AC wiring losses

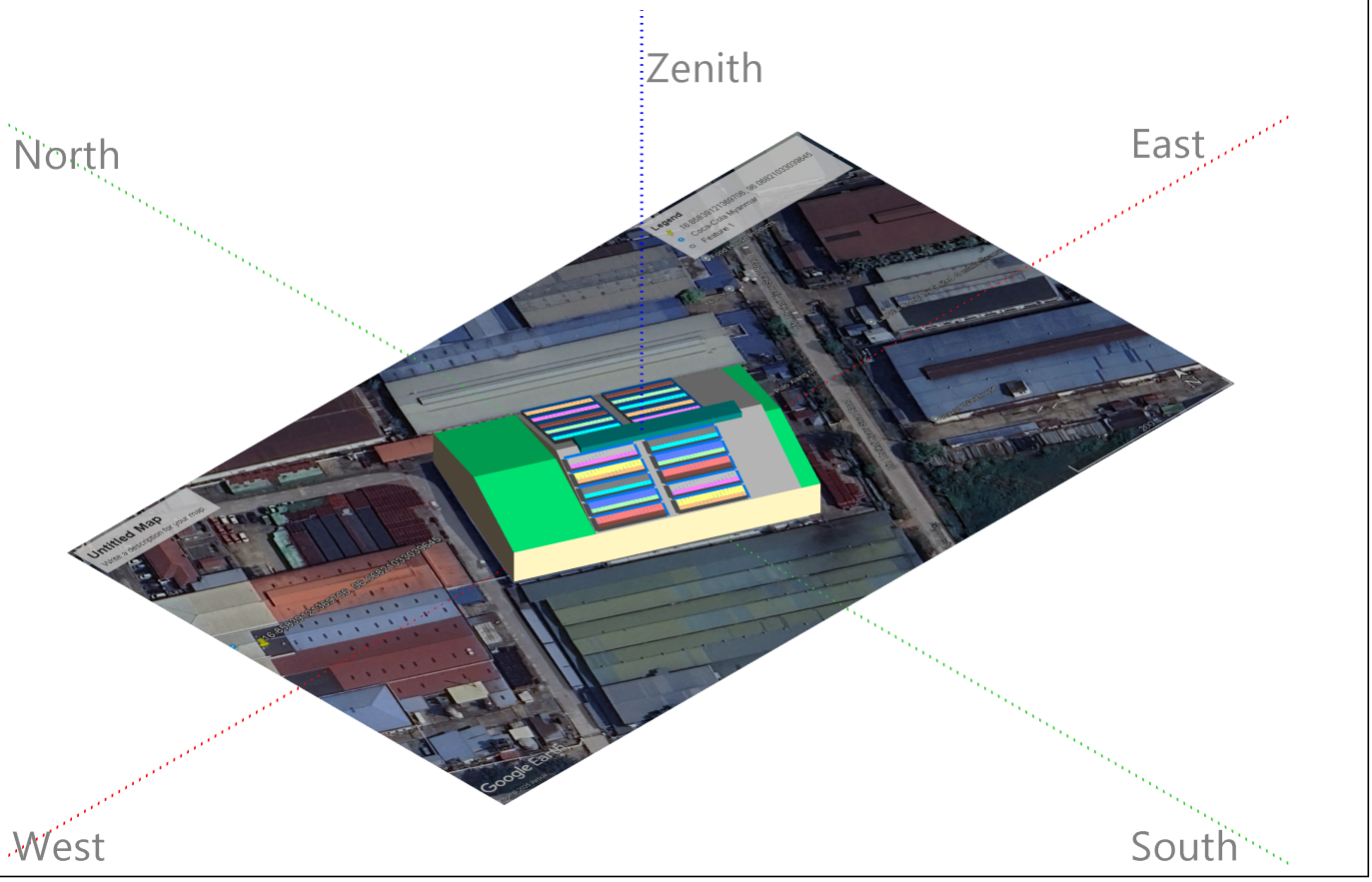
Inv. output line up to injection point
Inverter voltage 400 Vac tri
Loss Fraction 0.06 % at STC

Inverter: SUN2000-100KTL-M2
Wire section (2 Inv.) Copper 2 x 3 x 95 mm²
Average wires length 10 m

Inverter: SUN2000-100KTL-M2
Wire section (2 Inv.) Copper 2 x 3 x 50 mm²
Average wires length 0 m

Near shadings parameter

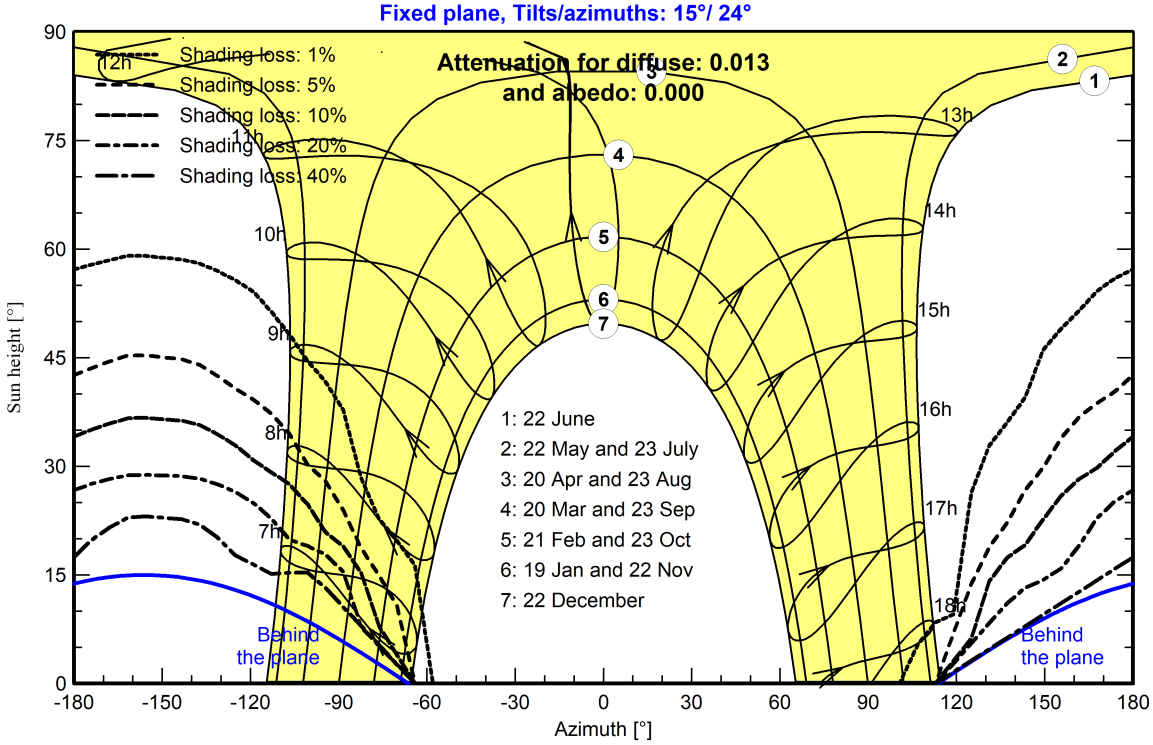
Perspective of the PV-field and surrounding shading scene



Iso-shadings diagram

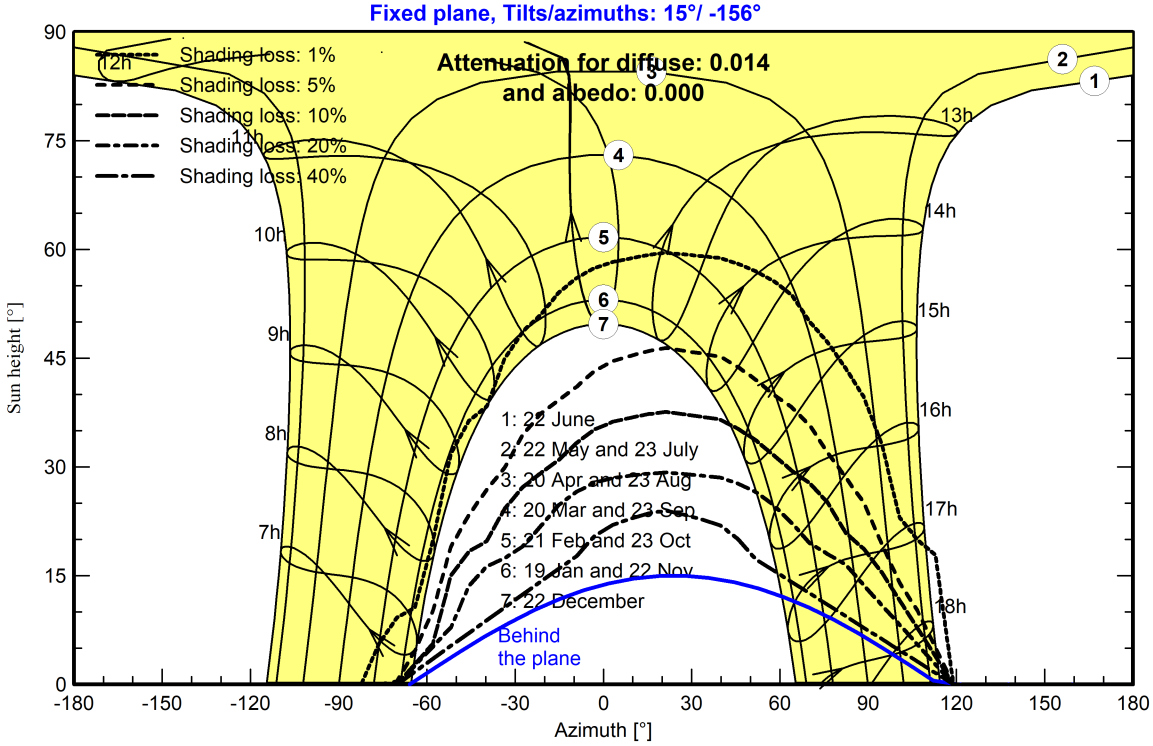
Orientation #1

Fixed plane, Tilts/azimuths: 15°/ 24°



Orientation #2

Fixed plane, Tilts/azimuths: 15°/ -156°



Project: Coca Cola Factory Myanmar (421.2kwp On Grid Solar System Design Project)

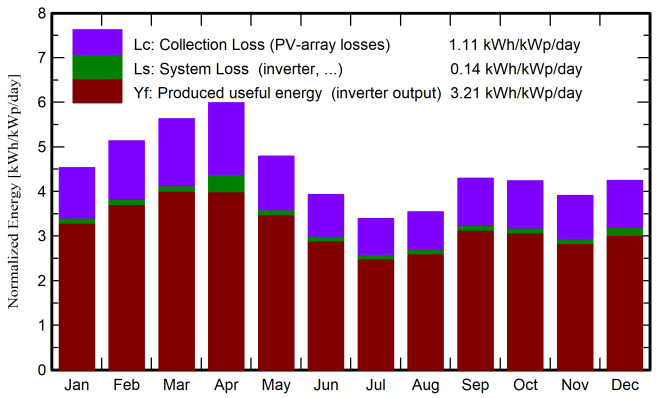
Variant: 421.2kwp On Grid Solar System Simulation

Main results

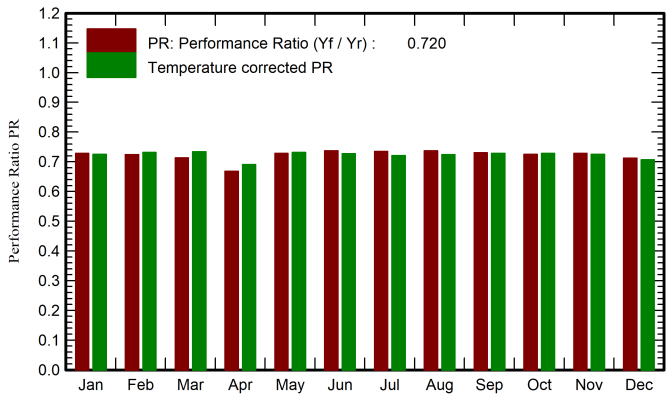
System Production

Produced Energy	493816 kWh/year	Specific production	1172 kWh/kWp/year
Used Energy	264000 kWh/year	Perf. Ratio PR	71.97 %
Apparent energy	377999 kVAh/year	Solar Fraction SF	43.87 %

Normalized productions (per installed kWp)



Performance Ratio PR



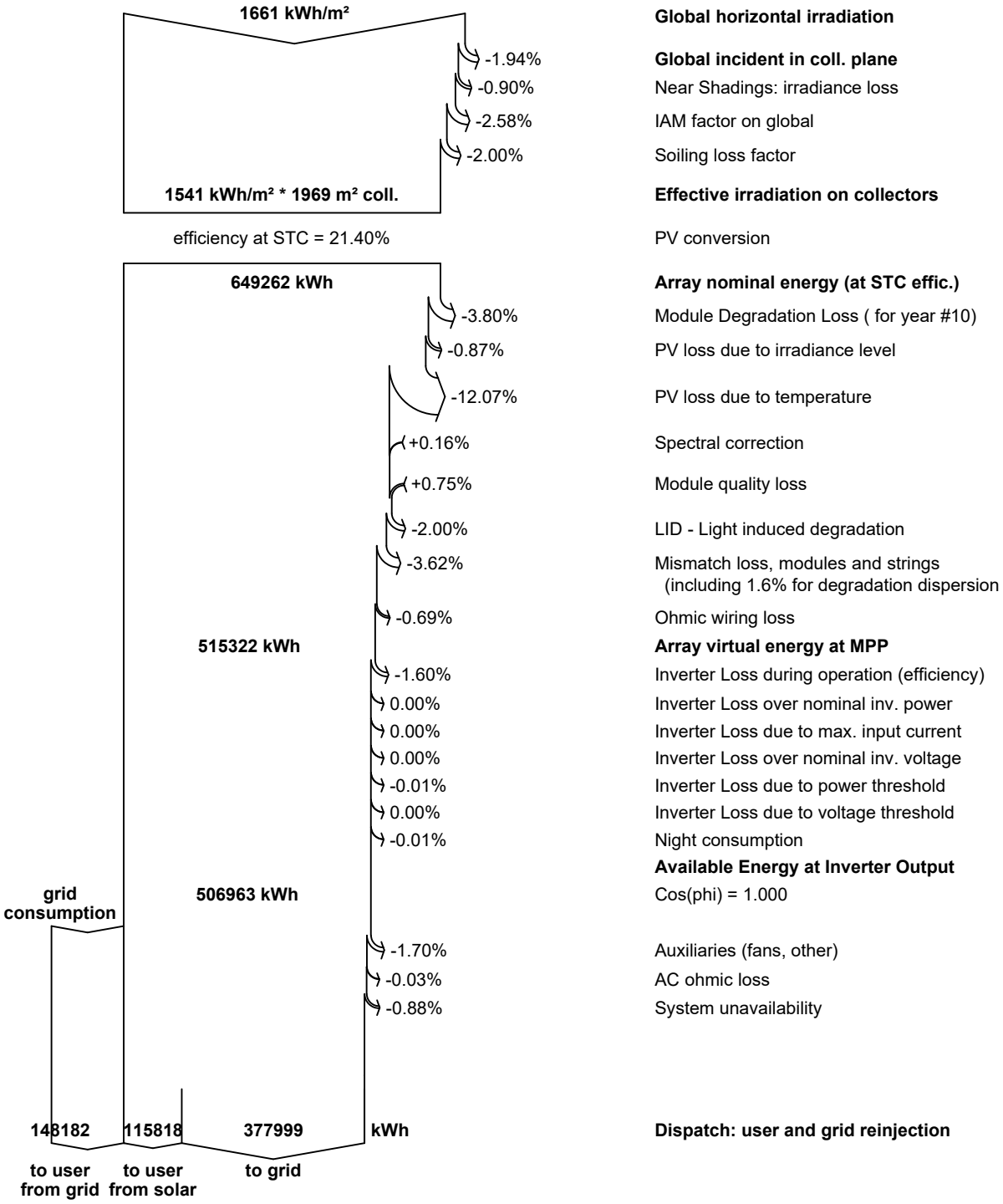
Balances and main results

	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	142.8	59.57	25.53	140.5	131.6	44556	22000	9172	33903	12828
February	146.3	65.85	27.22	143.9	135.9	45232	20000	8887	34952	11113
March	177.7	77.59	29.46	174.6	166.3	54061	25000	11239	41181	13761
April	182.9	86.06	30.86	179.6	171.5	55497	20000	8984	41531	11016
May	151.6	94.61	29.37	148.5	141.1	47030	25000	11912	33630	13088
June	120.7	82.49	27.08	118.0	111.9	37956	23000	10514	26108	12486
July	107.8	75.56	27.17	105.2	99.6	33870	22000	9813	22751	12187
August	112.3	77.38	26.90	109.8	104.0	35382	20000	9070	24989	10930
September	131.6	72.24	26.99	128.9	122.1	41057	23000	10173	29488	12827
October	134.0	69.30	28.28	131.4	124.4	41611	21000	8661	31486	12339
November	119.5	62.13	27.66	117.1	110.1	37238	23000	9390	26520	13610
December	134.0	57.79	25.94	131.5	122.8	41833	20000	8005	31459	11995
Year	1661.2	880.58	27.70	1629.0	1541.2	515322	264000	115818	377999	148182

Legends

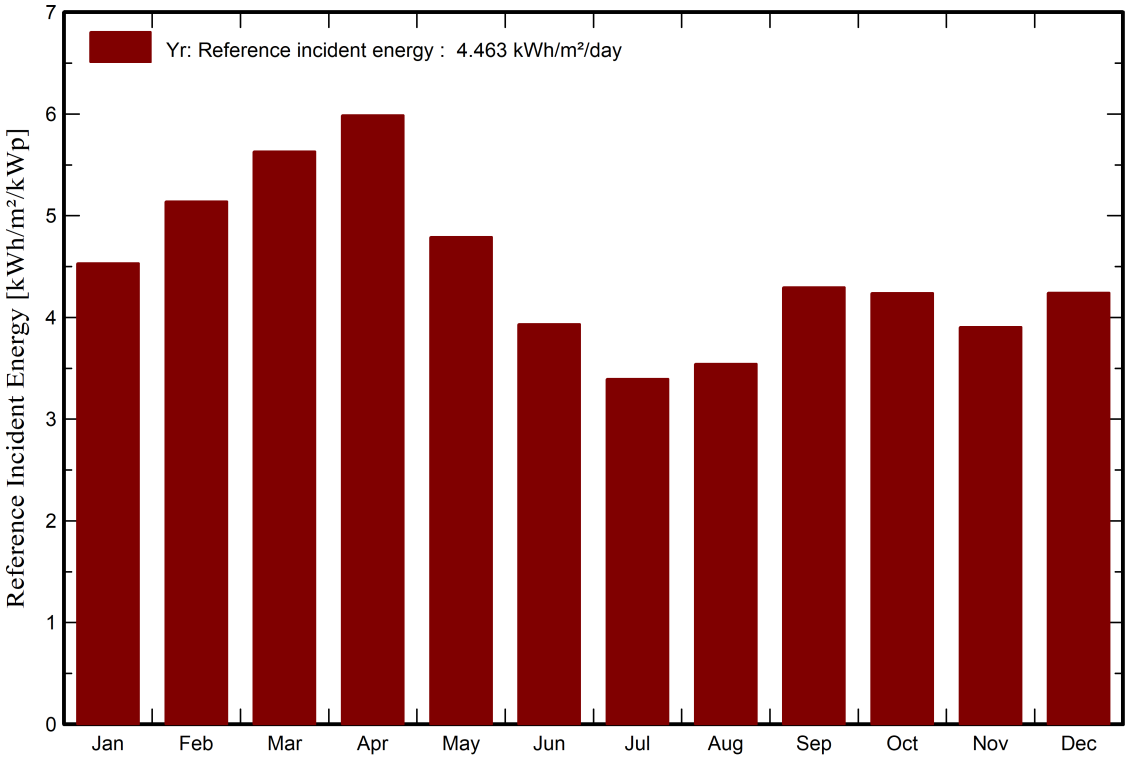
GlobHor	Global horizontal irradiation	EArray	Effective energy at the output of the array
DiffHor	Horizontal diffuse irradiation	E_User	Energy supplied to the user
T_Amb	Ambient Temperature	E_Solar	Energy from the sun
GlobInc	Global incident in coll. plane	E_Grid	Energy injected into grid
GlobEff	Effective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

Loss diagram

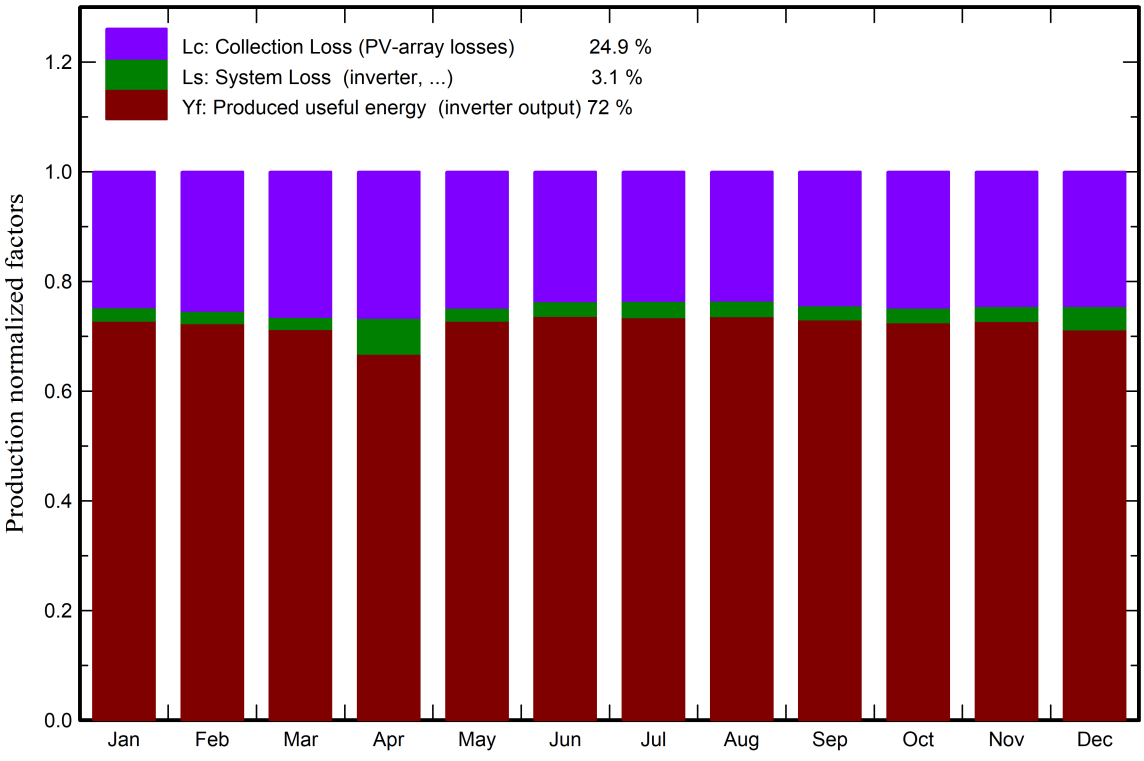


Predef. graphs

Reference Incident Energy in Collector Plane

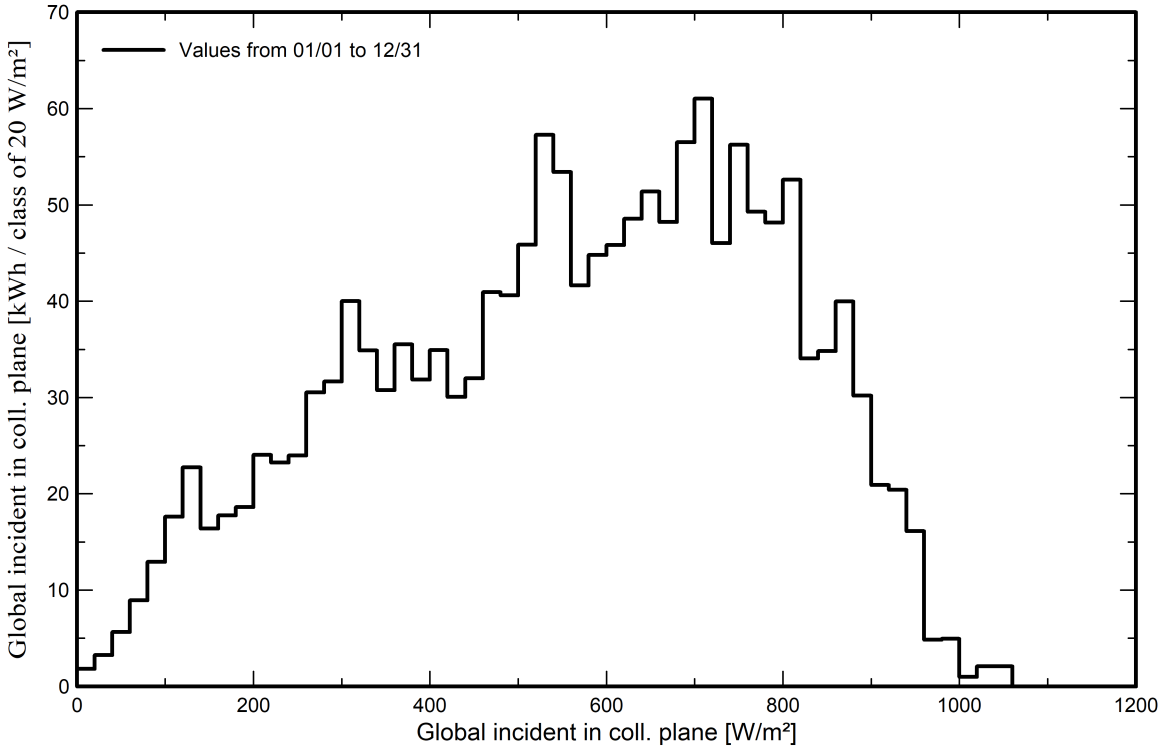


Normalized Production and Loss Factors

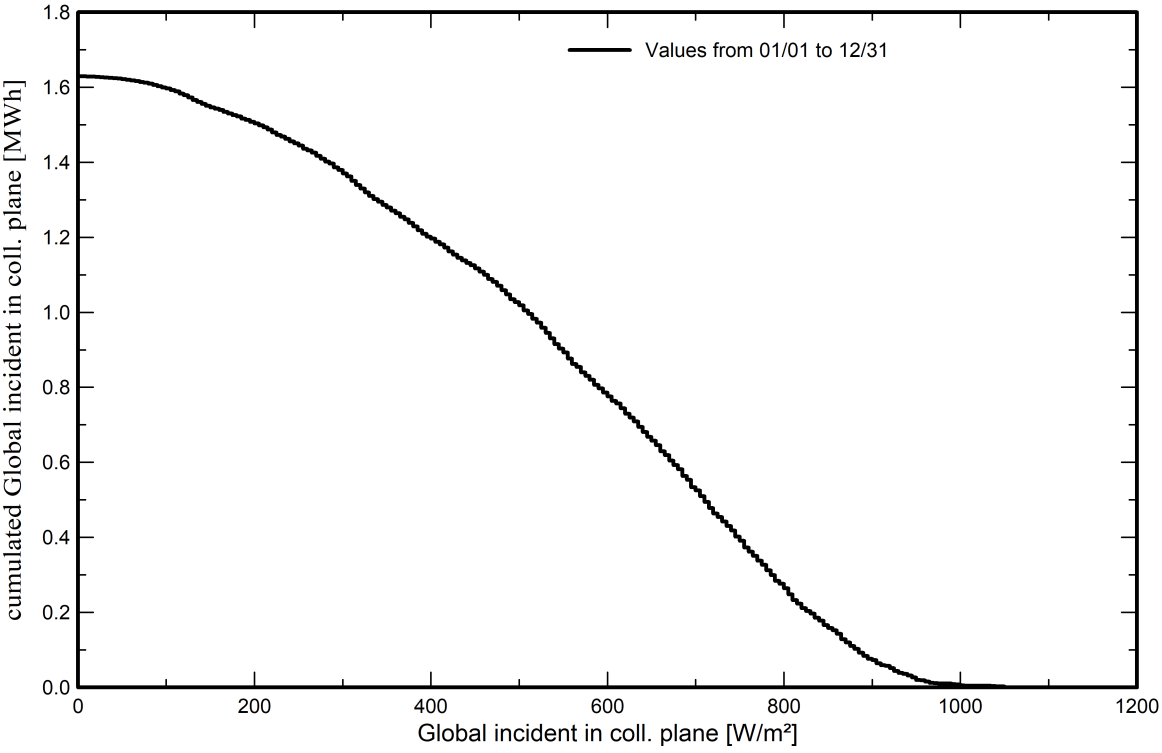


Predef. graphs

Incident Irradiation Distribution

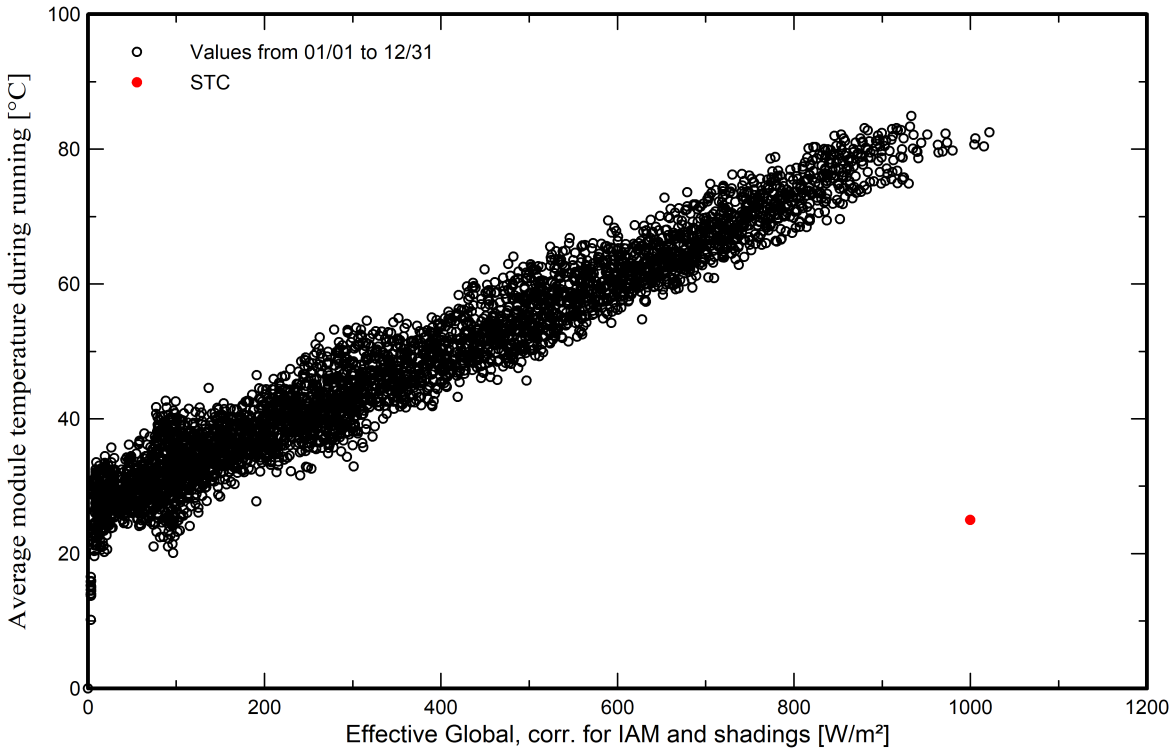


Incident Irradiation cumulative distribution

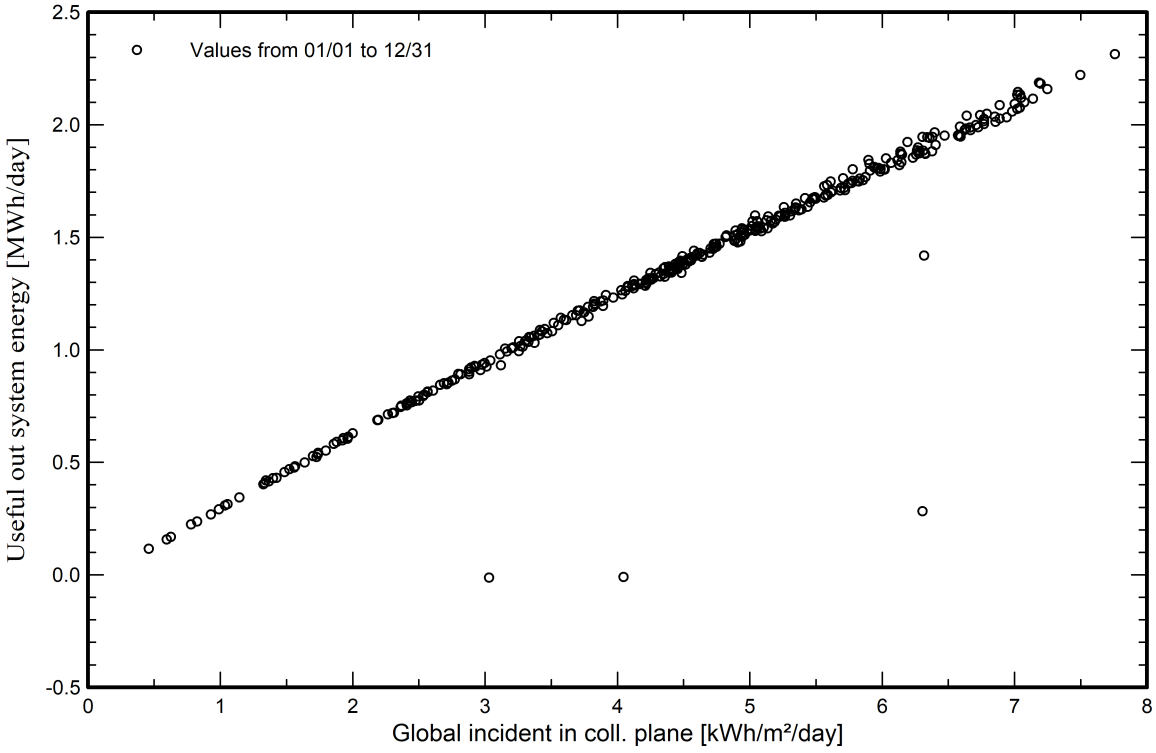


Predef. graphs

Array Temperature vs. Effective Irradiance

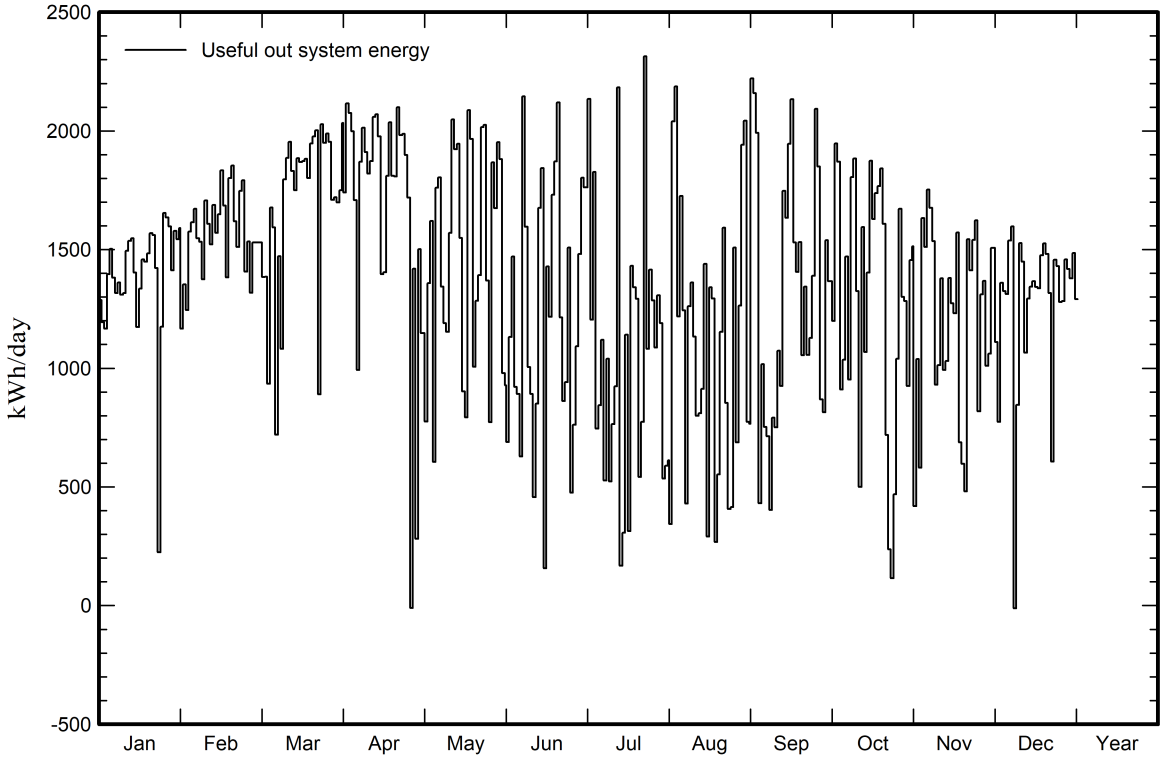


Daily Input/Output diagram

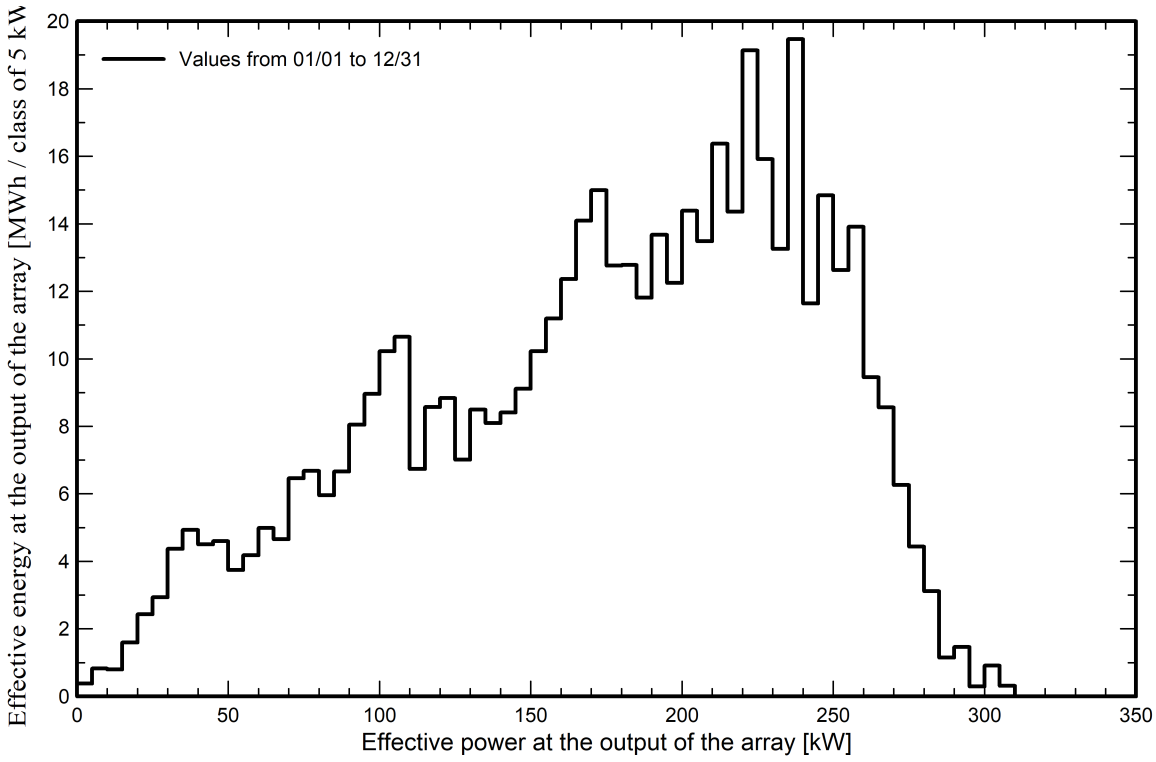


Predef. graphs

Daily System Output Energy

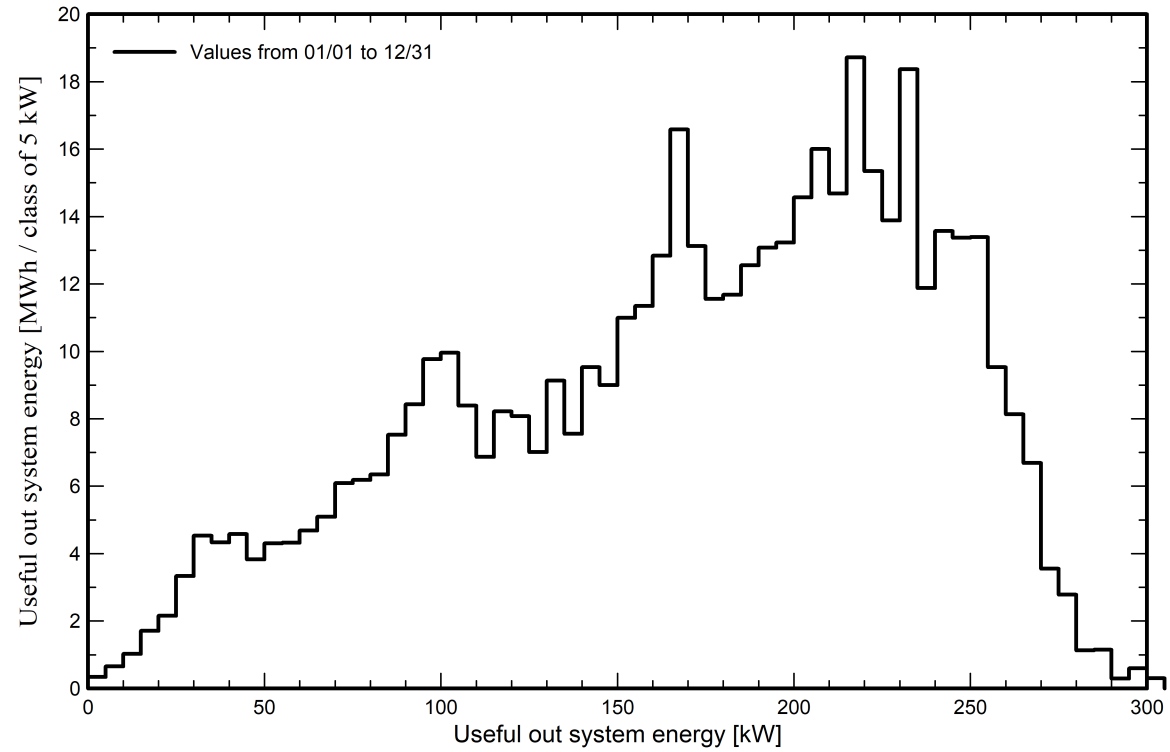


Array Power Distribution

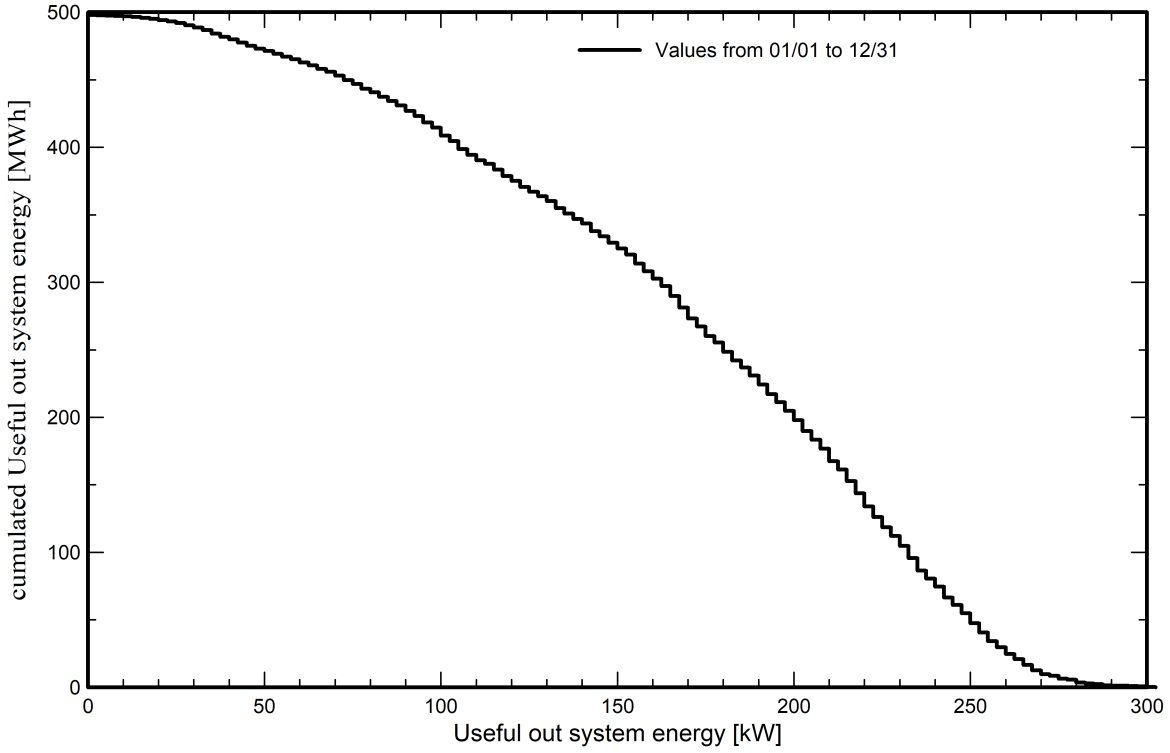


Predef. graphs

System Output Power Distribution

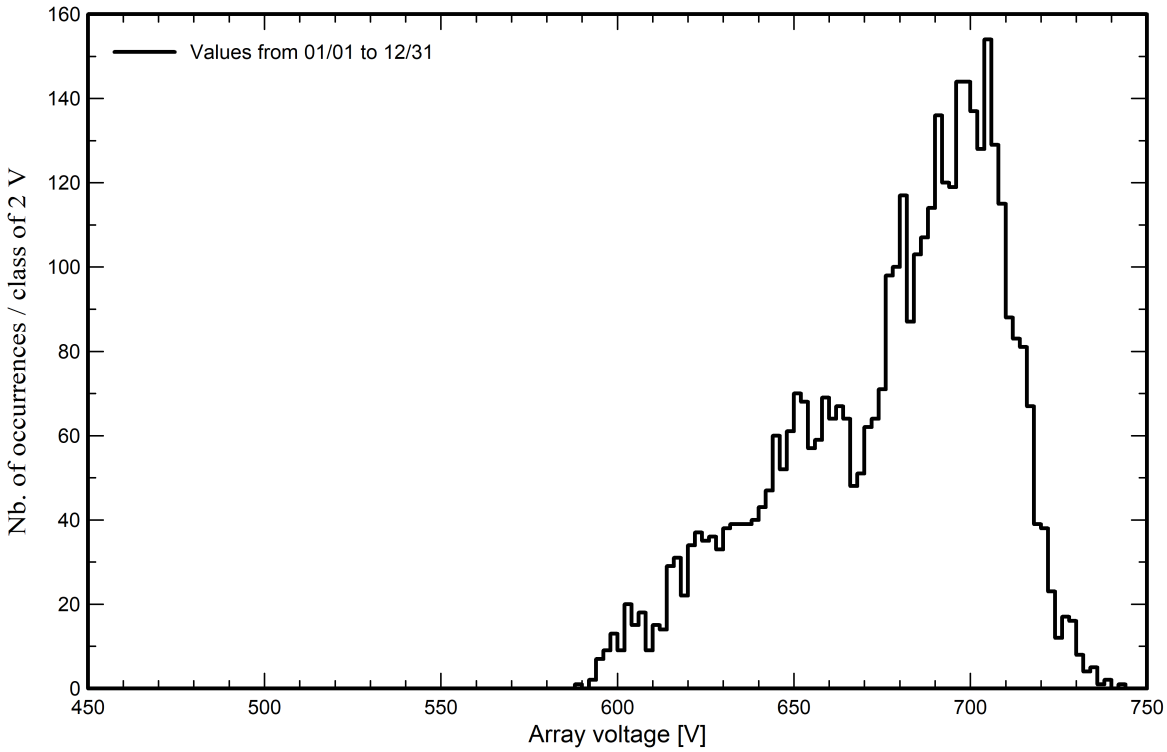


System Output Power cumulative distribution

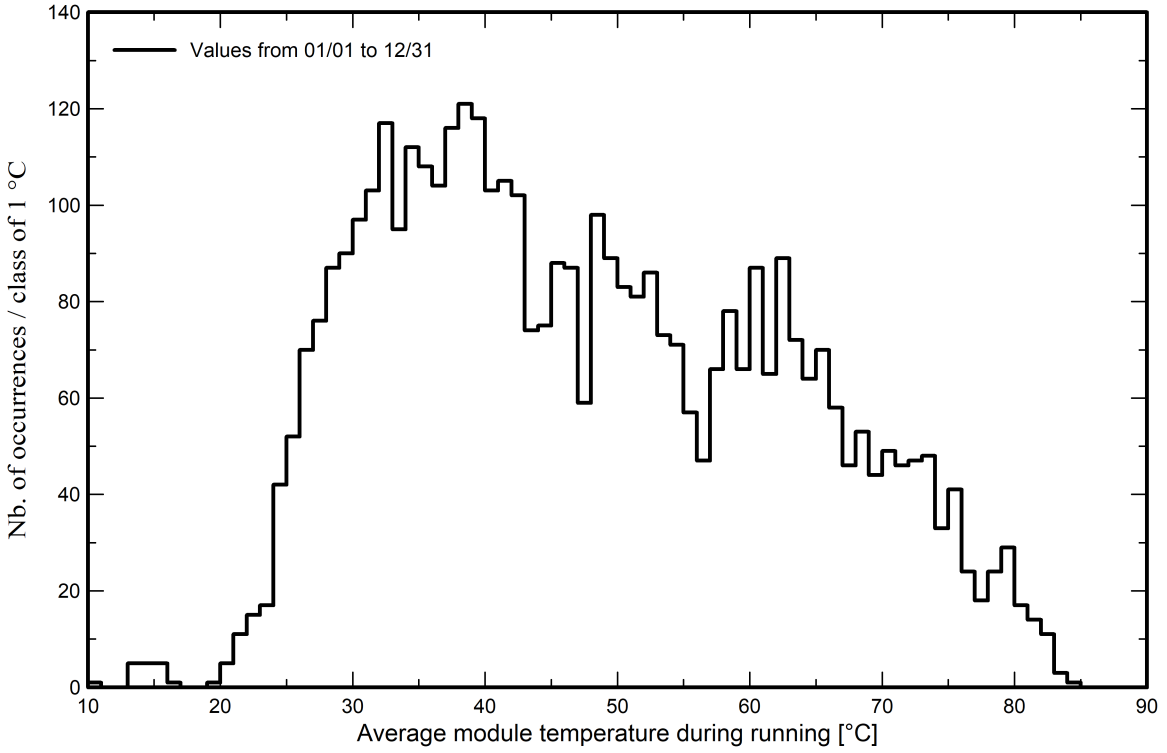


Predef. graphs

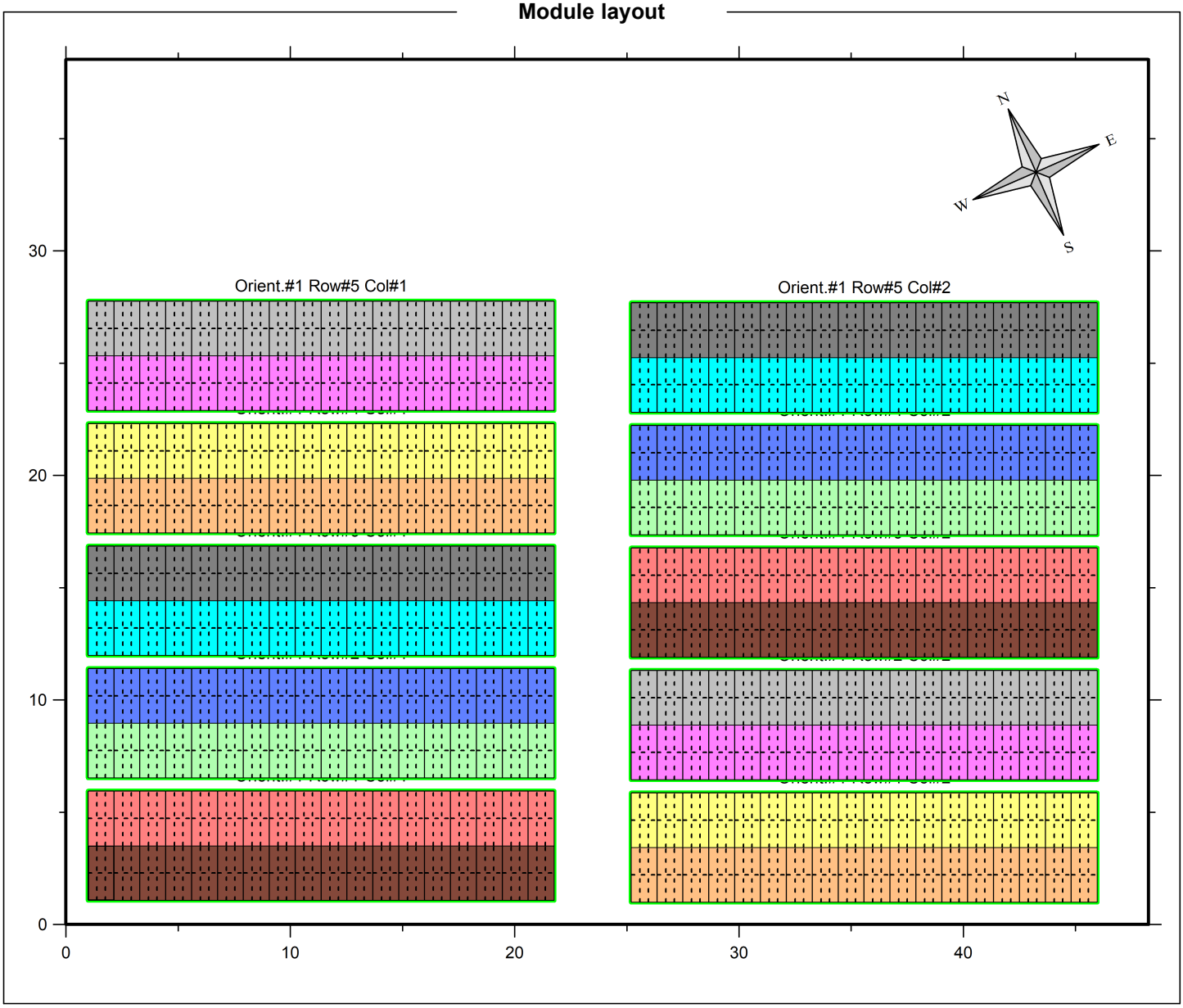
Array Voltage Distribution



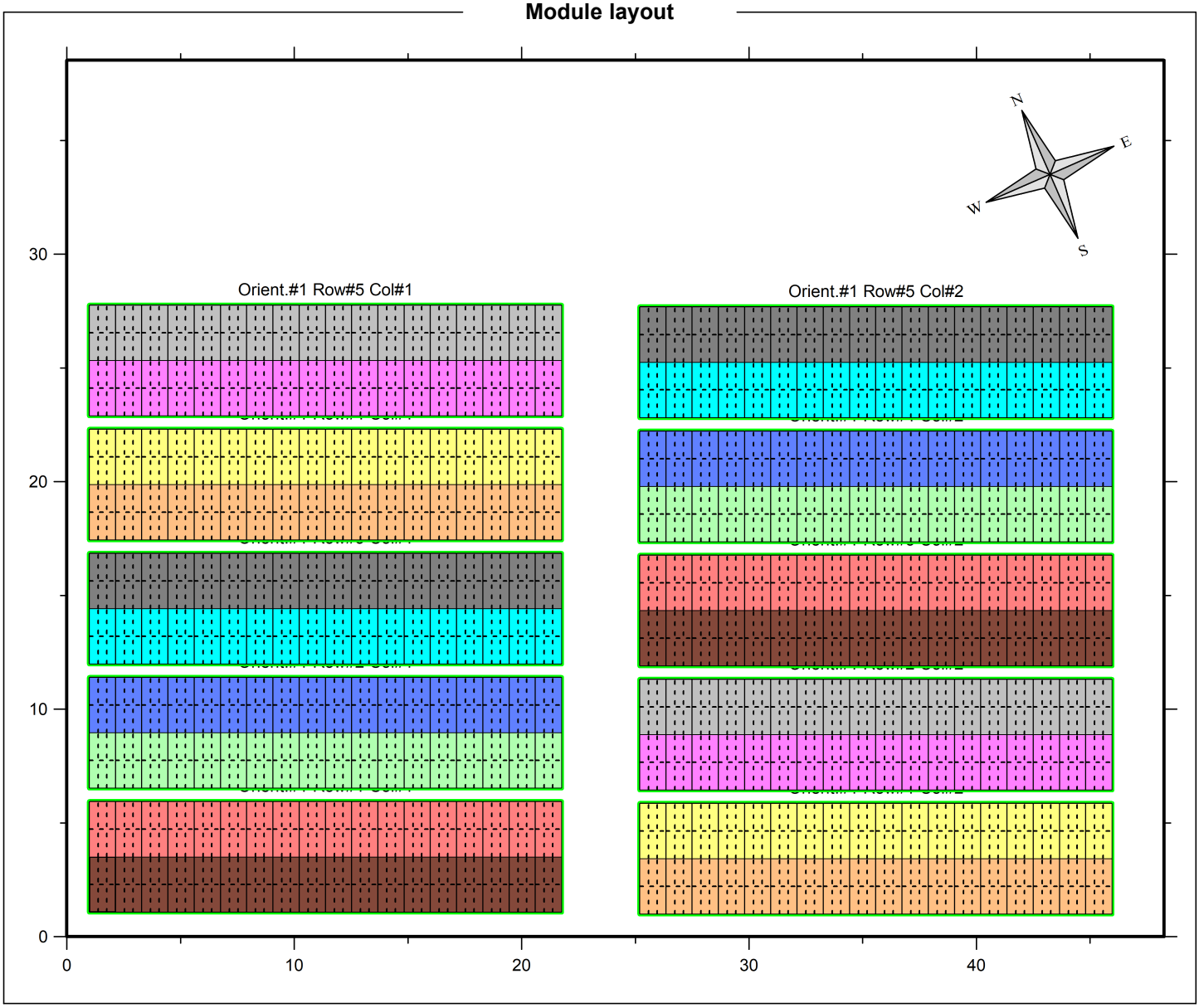
Array Temperature Distribution during running



Module layout

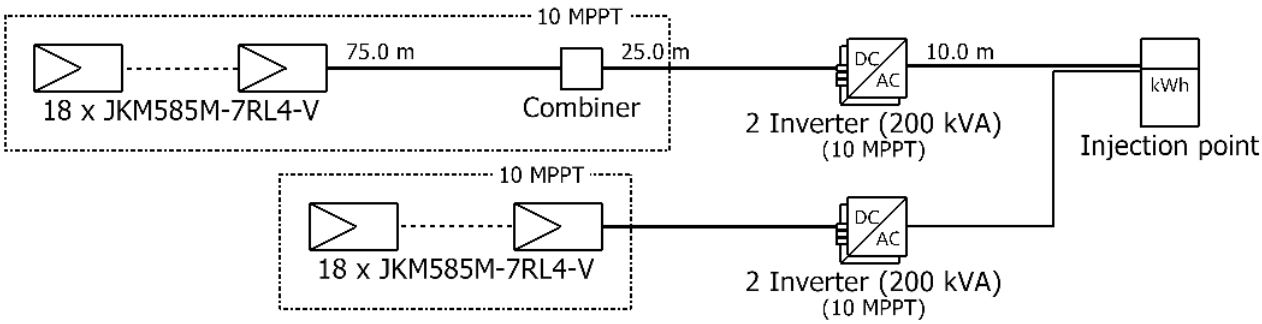


Module layout



Single-line diagram

PVsyst V7.4.8
VC0, Simulation date:
04/23/25 21:19
with V7.4.8



PV module	JKM585M-7RL4-V
Inverter	SUN2000-100KTL-M2
String	18 x JKM585M-7RL4-V

	Coca Cola Factory Myanmar (42 1	
	VC0 : 421.2kwp On Grid Solar System Simulation	04/23/25