



Version 7.4.5

PVsyst - Simulation report

Grid-Connected System

Project: Projekt Mikita Rymasheuski Lublin

Variant: 1

Building system

System power: 6.30 kWp

Lublin - Poland

Author

Wydzial Inżynierii Srodowiska (Poland)



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VCO, Simulation date:
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Project summary			
Geographical Site	Situation	Project settings	
Lublin	Latitude 51.25 °N	Albedo 0.20	
Poland	Longitude 22.57 °E		
	Altitude 188 m		
	Time zone UTC+1		
Meteo data			
Lublin			
Meteonorm 8.1 (1996-2015), Sat=100% - Synthetic			

System summary			
Grid-Connected System	Building system	User's needs	
PV Field Orientation	Near Shadings	Unlimited load (grid)	
Fixed plane	Linear shadings : Fast (table)		
Tilt/Azimuth			
35 / 10 °			
System information			
PV Array	Inverters		
Nb. of modules	Nb. of units	1 unit	
Pnom total	Pnom total	6.00 kWac	
	Pnom ratio	1.050	

Results summary				
Produced Energy	6615.12 kWh/year	Specific production	1050 kWh/kWp/year	Perf. Ratio PR 82.90 %

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General parameters		
Grid-Connected System	Building system	
PV Field Orientation		
Orientation	Sheds configuration	Models used
Fixed plane		Transposition Perez
Tilt/Azimuth	35 / 10 °	Diffuse Perez, Meteonorm
Horizon	Near Shadings	Circumsolar separate
Free Horizon	Linear shadings : Fast (table)	User's needs
		Unlimited load (grid)

PV Array Characteristics		
PV module	Inverter	
Manufacturer	Generic	Generic
Model	PEM.BB-450	EQX2 6002-T
(Custom parameters definition)	(Original PVsyst database)	
Unit Nom. Power	450 Wp	6.00 kWac
Number of PV modules	14 units	2 * MPPT 50% 1 unit
Nominal (STC)	6.30 kWp	6.0 kWac
Modules	2 string x 7 In series	160-1000 V
At operating cond. (50°C)		Pnom ratio (DC:AC) 1.05
Pmpp	5.67 kWp	No power sharing between MPPTs
U mpp	217 V	
I mpp	26 A	
Total PV power		Total inverter power
Nominal (STC)	6 kWp	6 kWac
Total	14 modules	1 unit
Module area	30.6 m²	1.05
Cell area	27.8 m²	

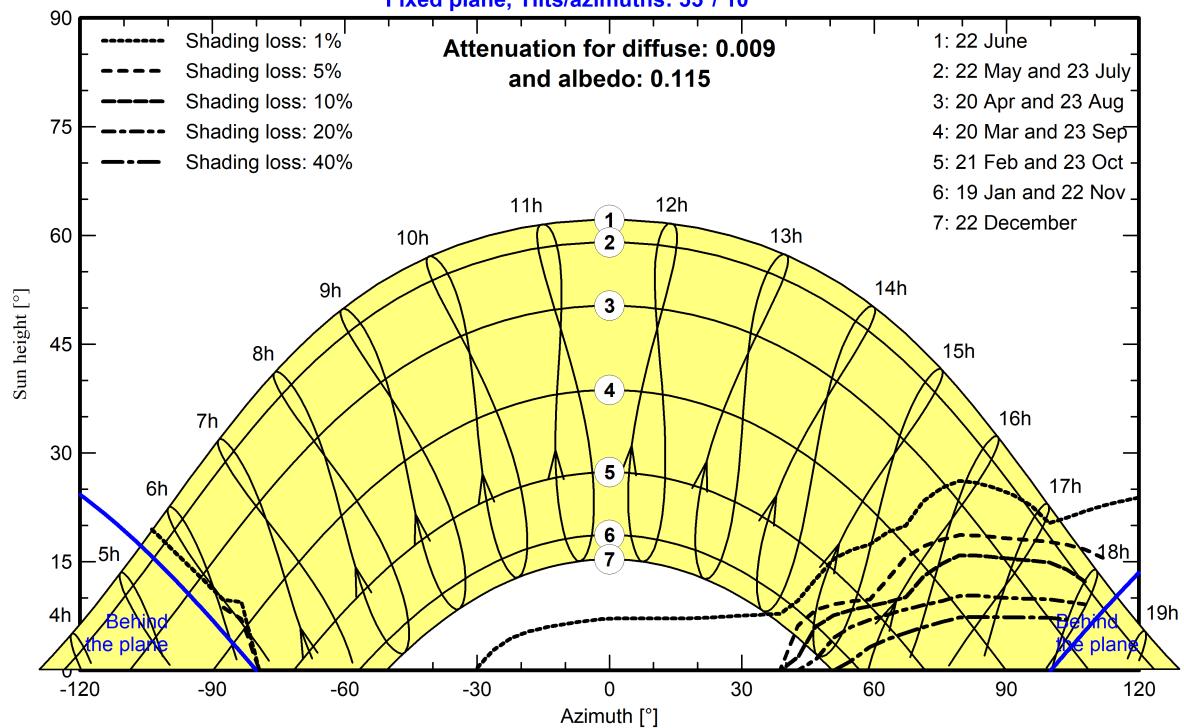
Array losses		
Thermal Loss factor	DC wiring losses	Module Quality Loss
Module temperature according to irradiance	Global array res.	Loss Fraction -0.3 %
Uc (const)	20.0 W/m²K	
Uv (wind)	0.0 W/m²K/m/s	
Module mismatch losses	IAM loss factor	
Loss Fraction	ASHRAE Param.: IAM = 1 - bo (1/cosi -1)	
	bo Param. 0.05	



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Near shadings parameter**Perspective of the PV-field and surrounding shading scene****Iso-shadings diagram****Orientation #1****Fixed plane, Tilts/azimuths: 35° / 10°**



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Main results

System Production

Produced Energy 6615.12 kWh/year

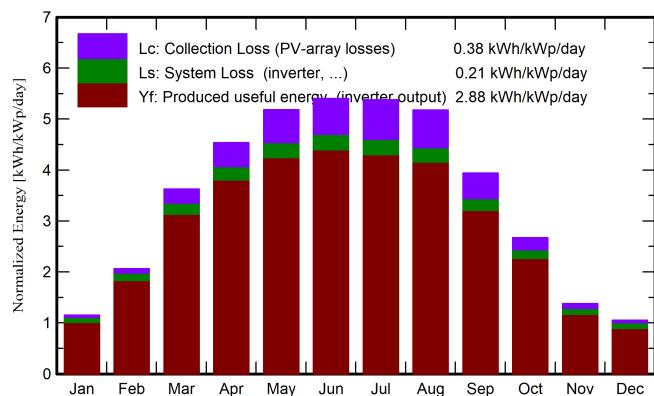
Specific production

1050 kWh/kWp/year

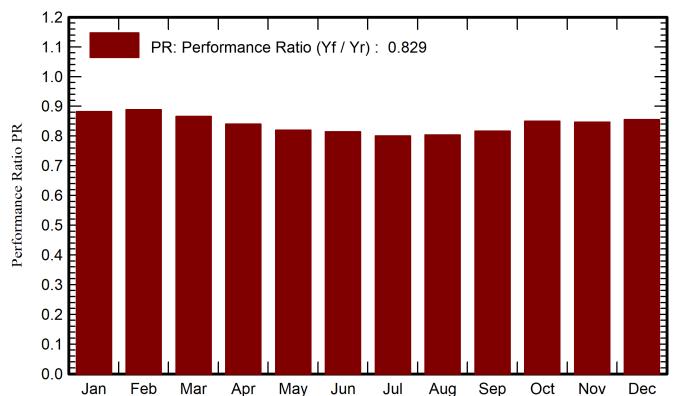
Perf. Ratio PR

82.90 %

Normalized productions (per installed kWp)



Performance Ratio PR



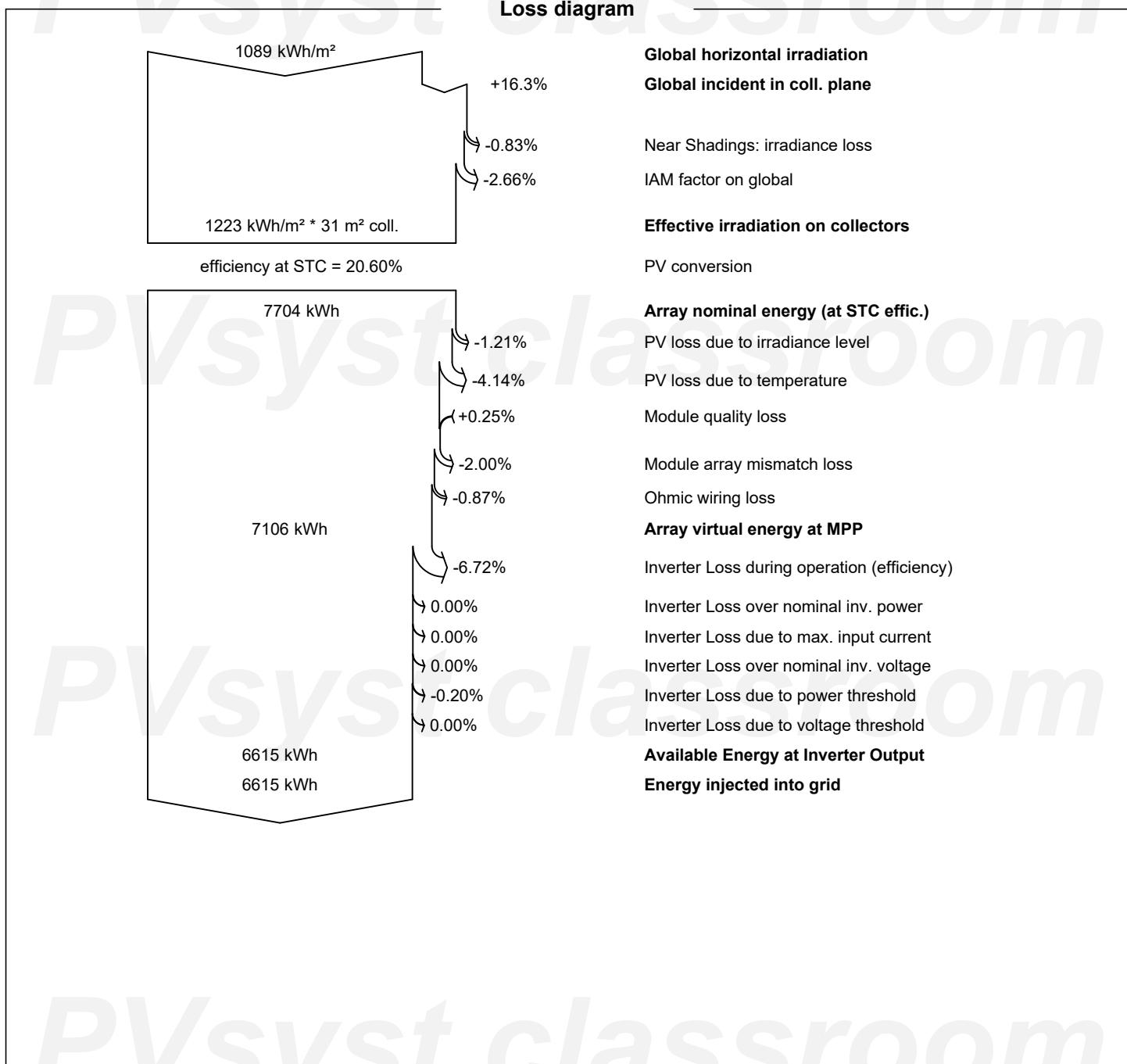
Balances and main results

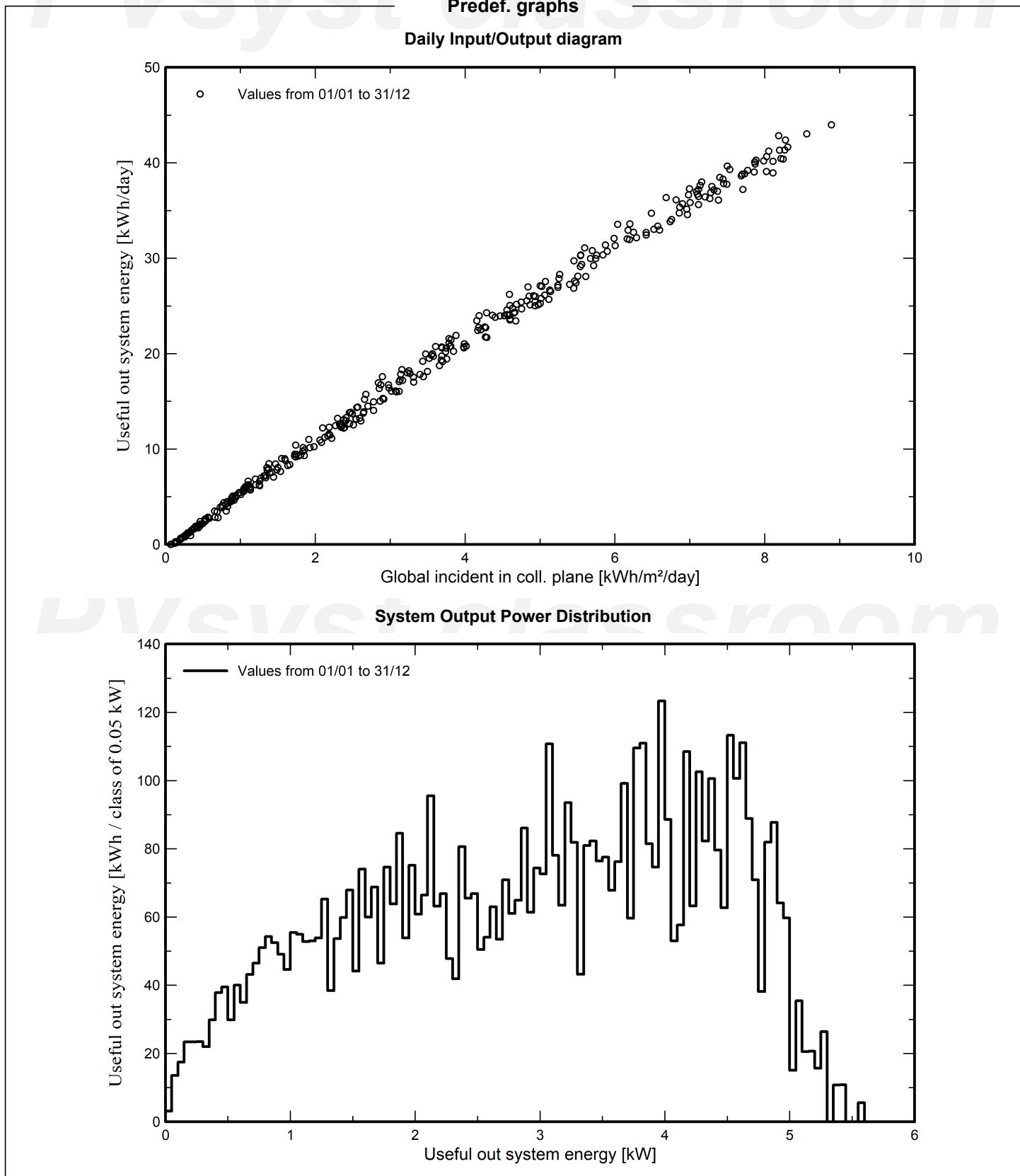
	GlobHor kWh/m ²	DiffHor kWh/m ²	T_Amb °C	GlobInc kWh/m ²	GlobEff kWh/m ²	EArray kWh	E_Grid kWh	PR ratio
January	22.3	16.67	-2.68	35.6	34.3	218.3	198.1	0.882
February	38.3	24.15	-1.55	57.8	55.8	349.5	323.5	0.889
March	81.8	40.82	2.66	112.4	108.2	655.3	612.8	0.866
April	118.8	60.78	8.91	136.0	131.4	769.1	719.7	0.840
May	157.7	72.73	14.00	160.6	155.2	887.8	829.2	0.819
June	165.5	90.71	16.97	162.0	156.5	889.0	831.4	0.815
July	167.3	79.10	19.42	166.7	161.3	900.0	840.2	0.800
August	145.0	68.22	18.90	160.5	155.2	868.3	812.9	0.804
September	94.3	43.37	13.42	118.2	114.0	651.5	607.6	0.816
October	57.2	34.48	8.46	82.8	79.4	476.6	443.2	0.850
November	24.4	15.63	4.00	41.4	39.9	244.2	221.1	0.847
December	16.3	9.87	-0.45	32.5	31.4	196.2	175.3	0.855
Year	1089.0	556.53	8.56	1266.6	1222.7	7105.9	6615.1	0.829

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





A

B

C

D

E

F

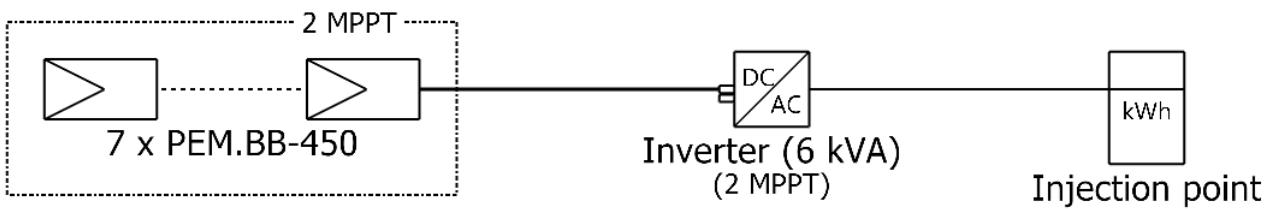
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Single-line diagram



PV module	PEM.BB-450
Inverter	EQX2 6002-T
String	7 x PEM.BB-450

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VC0 : 1

29/01/24