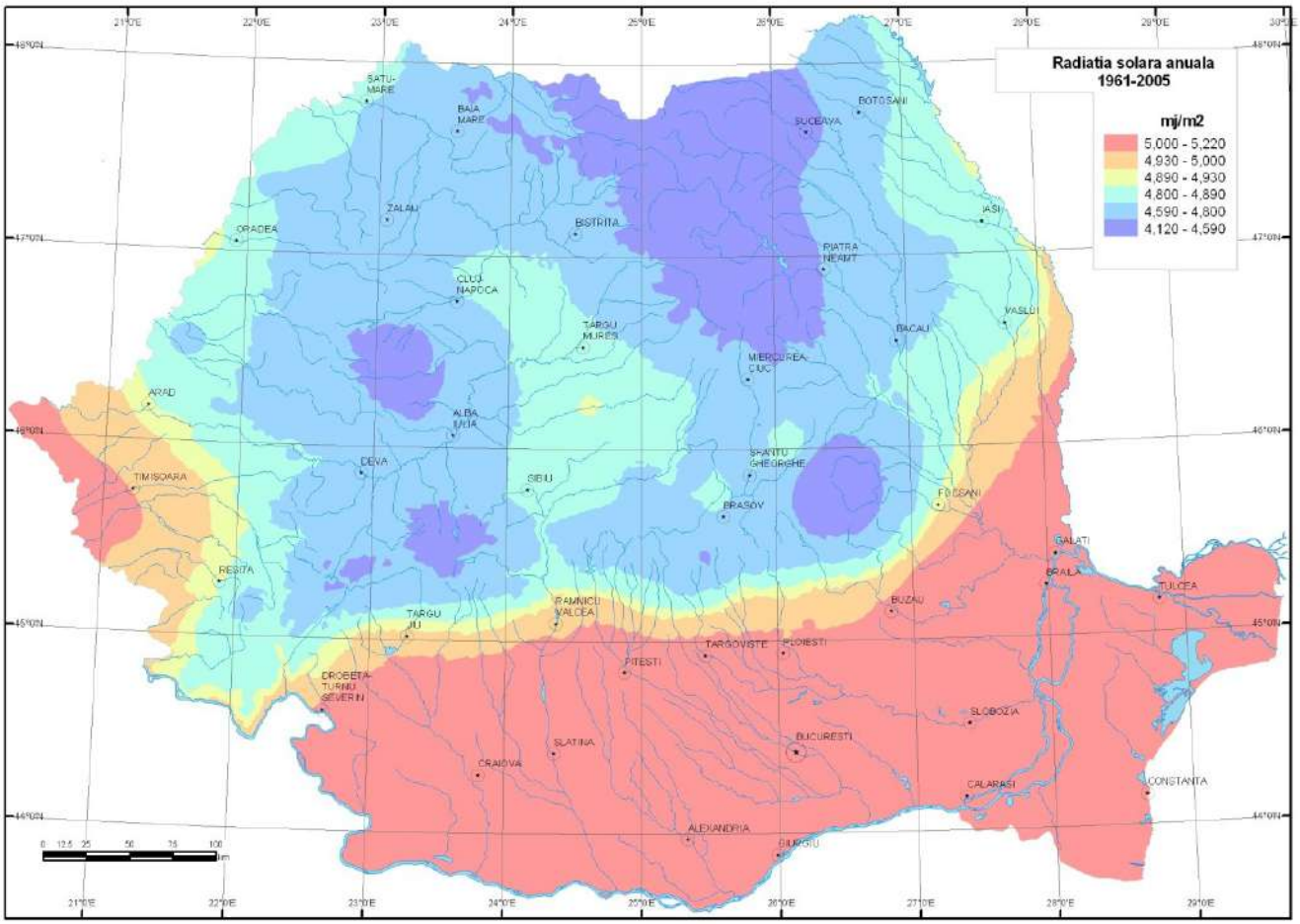
[PREZENTAREA PENTRU UN SISTEM FOTOVOLTAIC IN JIMBOLIA ROMANIA]

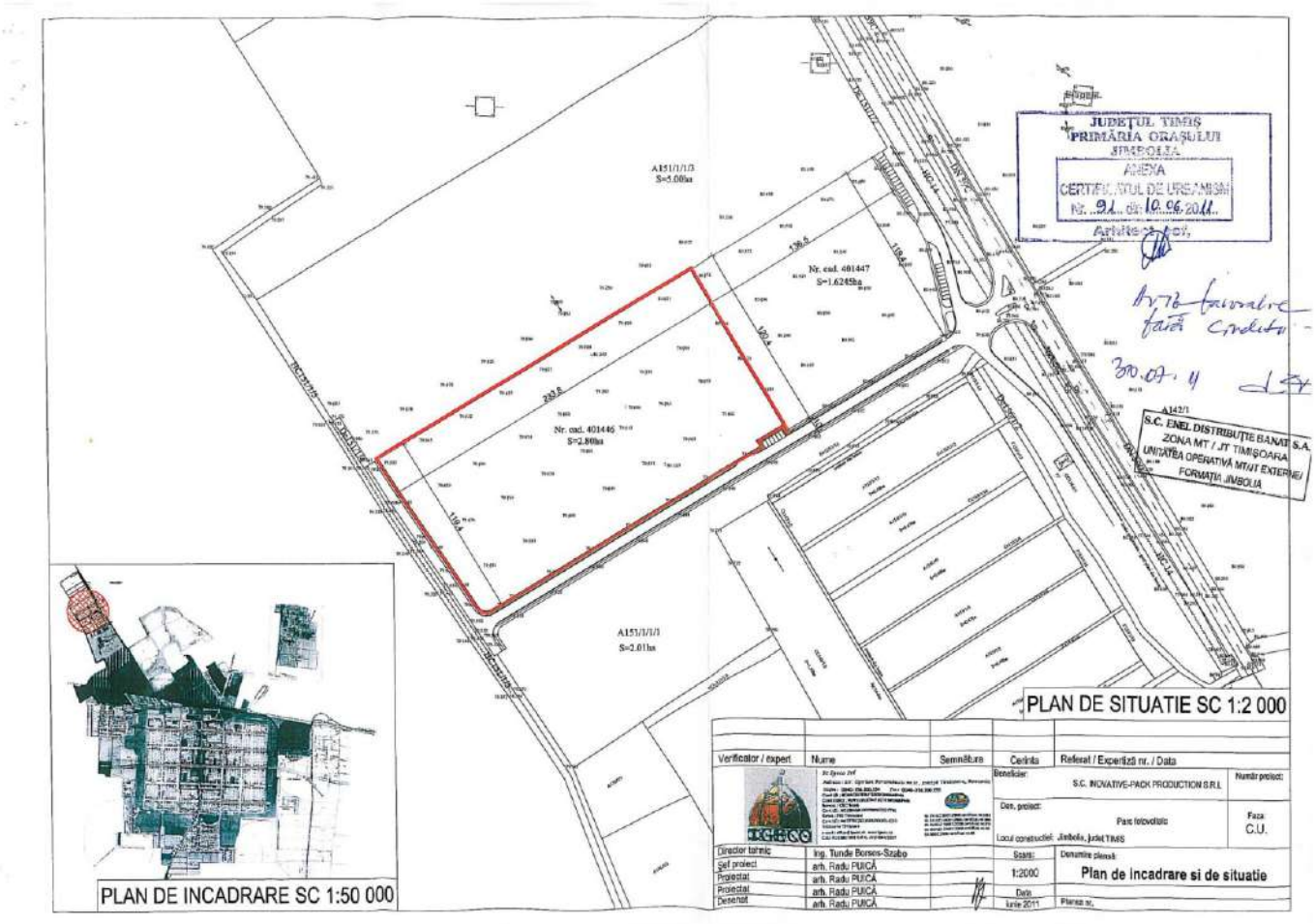
2012

Harta cu radiatia solara in Romania



Localizare pe harta

Plan de situatie



Analizarea locatiei

Amplasarea pe suprafata a modulelor

Rezultate principale

Simulation parameters

Collector Plane Orientation	Tilt	30°	Azimuth	0°
29Sheds	Pitch	6.10 m	Collector width	3.00 m
Inactive band	Top	0.00 m	Bottom	0.39 m
Shading limit angle	Gamma	23.19 °	Occupation Ratio	49.2 %
Shadings electrical effect	Cell size	12.5cm	Strings in width	3
Models used	Transposition	Perez	Diffuse	Measured
Horizon	Average Height	7.4°		
Near Shadings	No Shadings			

PV Array Characteristics

PV module	Si-poly	Model	**PVE-MTF132-230-6**		
		Manufacturer	PV Enterprise		
Number of PV modules		In series	14 modules	In parallel	441 strings
Total number of PV modules		Nb. modules	6174	Unit Nom. Power	230 Wp
Array global power		Nominal (STC)	**1420 kWp**	At operating cond.	1252 kWp (50°C)
Array operating characteristics (50°C)		U mpp	370 V	I mpp	3381 A
Total area		Module area	**10095 m²**		
Inverter		Model	**CL 60.0**		
		Manufacturer	Fronius		
Characteristics		Operating Voltage	230-500 V	Unit Nom. Power	60 kW AC
Inverter pack		Number of Inverter	23 units	Total Power	1380 kW AC

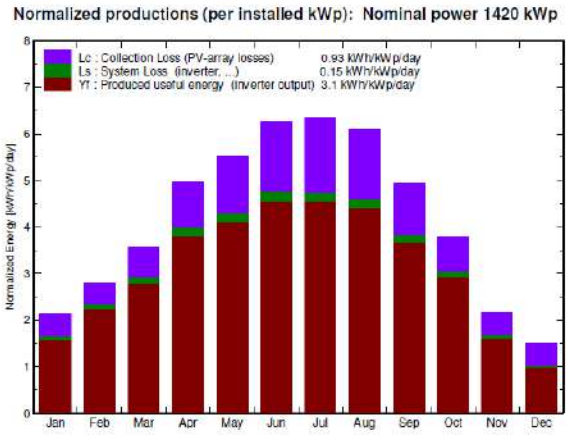
PV Array loss factors

Thermal Loss factor	Uc (const)	20.0 W/m²K	Uv (wind)	0.0 W/m²K / m/s
=> Nominal Oper. Coll. Temp. (G=800 W/m², Tamb=20°C, Wind velocity = 1m/s.)			NOCT	56 °C
Wiring Ohmic Loss	Global array res.	1.9 mOhm	Loss Fraction	1.5 % at STC
Module Quality Loss			Loss Fraction	1.5 %
Module Mismatch Losses			Loss Fraction	2.0 % at MPP
Incidence effect, ASHRAE parametrization	IAM =	1 - bo (1/cos i - 1)	bo Parameter	0.05

Simulare performante

Grid-Connected System: Main results

Project :	**1.4mw_romania**			
Simulation variant :	**Nuova variante di simulazione**			
Main system parameters	System type	**Grid-Connected**		
Horizon	Average Height	7.4°		
PV Field Orientation	Sheds disposition, tilt	30°	azimuth	0°
PV modules	Model	PVE-MTF132-230-6	Pnom	230 Wp
PV Array	Nb. of modules	6174	Pnom total	**1420 kWp**
Inverter	Model	CL 60.0	Pnom	60 kW ac
Inverter pack	Nb. of units	23.0	Pnom total	**1380 kW ac**
User's needs	Unlimited load (grid)			
Main simulation results				
System Production	**Produced Energy**	**1608 MWh/year**	Specific prod.	1133 kWh/kWp/year
	Performance Ratio PR	74.2 %		



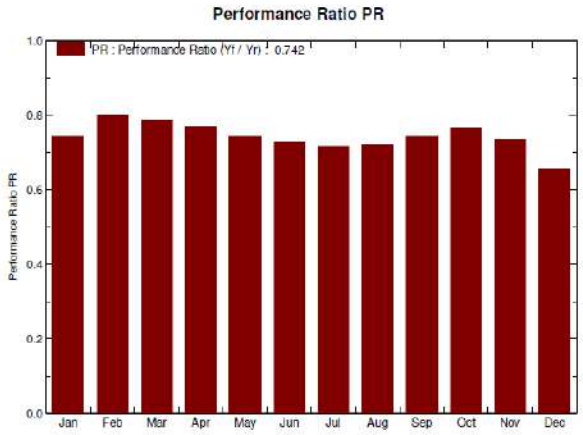
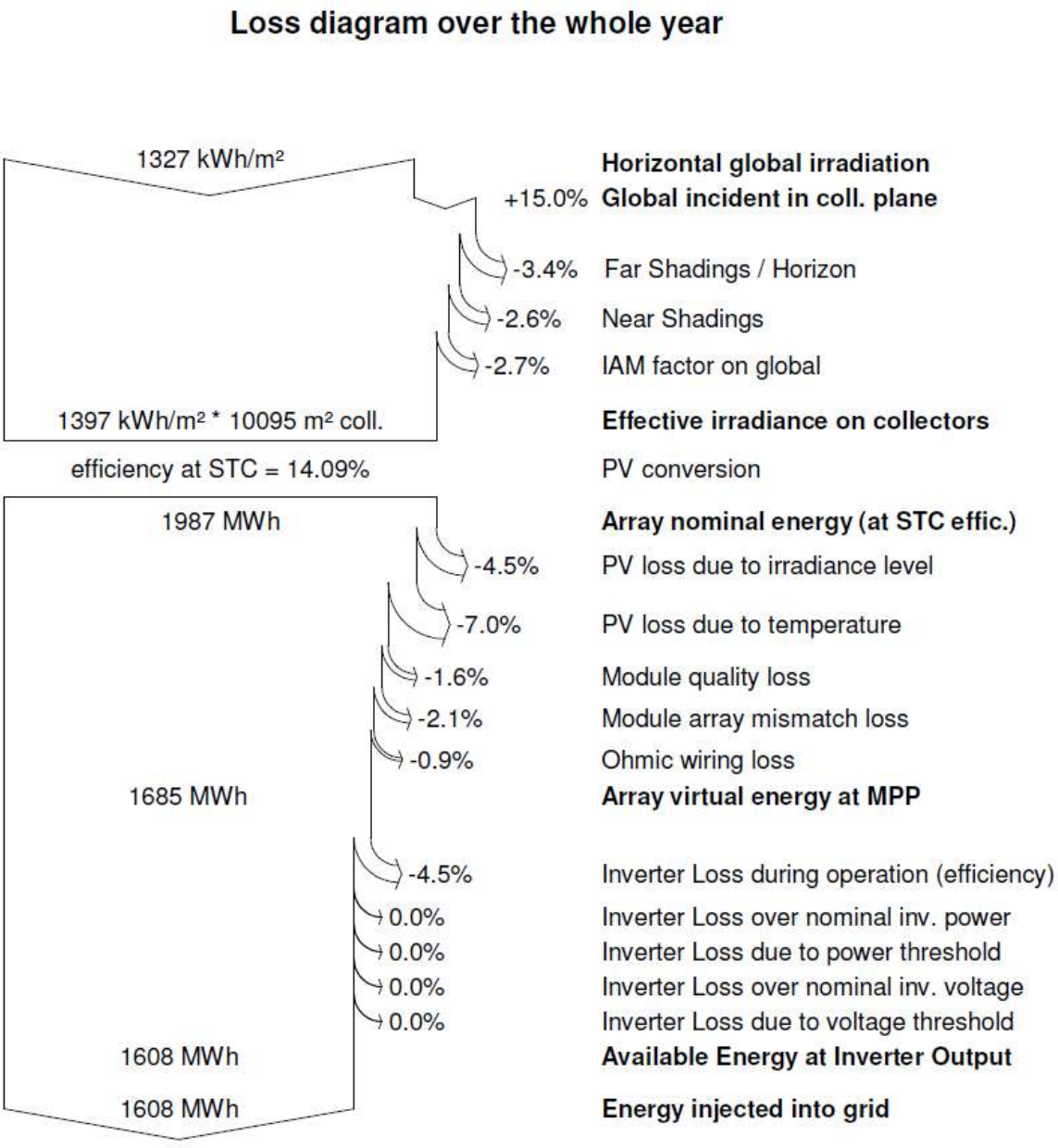


Diagrama de pierderi de-a lungul unui an



Costuri estimative

Price for ONE MWh Green Certificate							
as regulated by law							
lowest		highest		medium		actual	
€	27,00	€	55,00	€	41,00	€	55,00

PROJECT BASIC DATA AS CALCULATED IN SIMULATION

Number of Modules per Block	Capacity of Modules		
6	230,00	Wp	
Block Size	Total Nr of Blocks	Total Nr of Modules	Total Capcity
1380 Wp	1.032,000	6192	1424,16

simulated payback for	1.424,16	kWp	
average specific production	1.141,00	kWh/kWp/anno	
annual stimated production	1.624.966,56	kWh	
number of GC issued	6	GC /MWh	PV electricity
	9.749,80	Total	

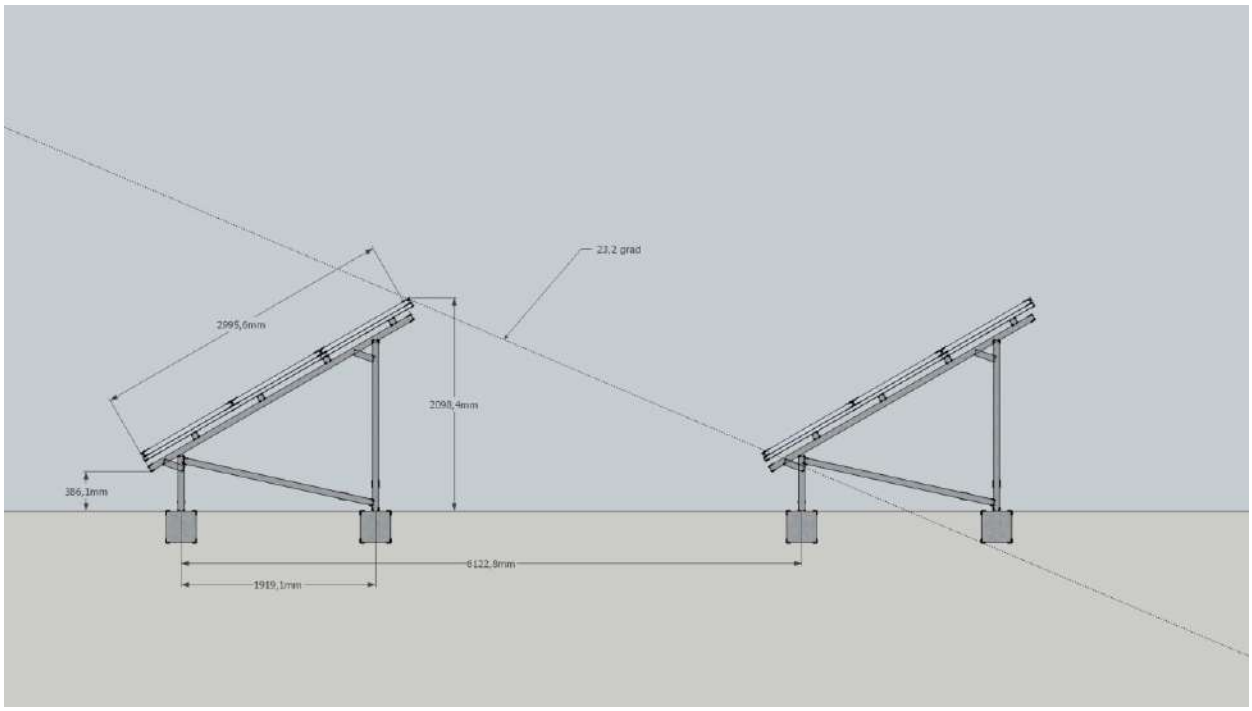
GC sales income							
lowest		highest		medium		actual	
€	263.244,58	€	536.238,96	399.741,77	€	536.238,96	

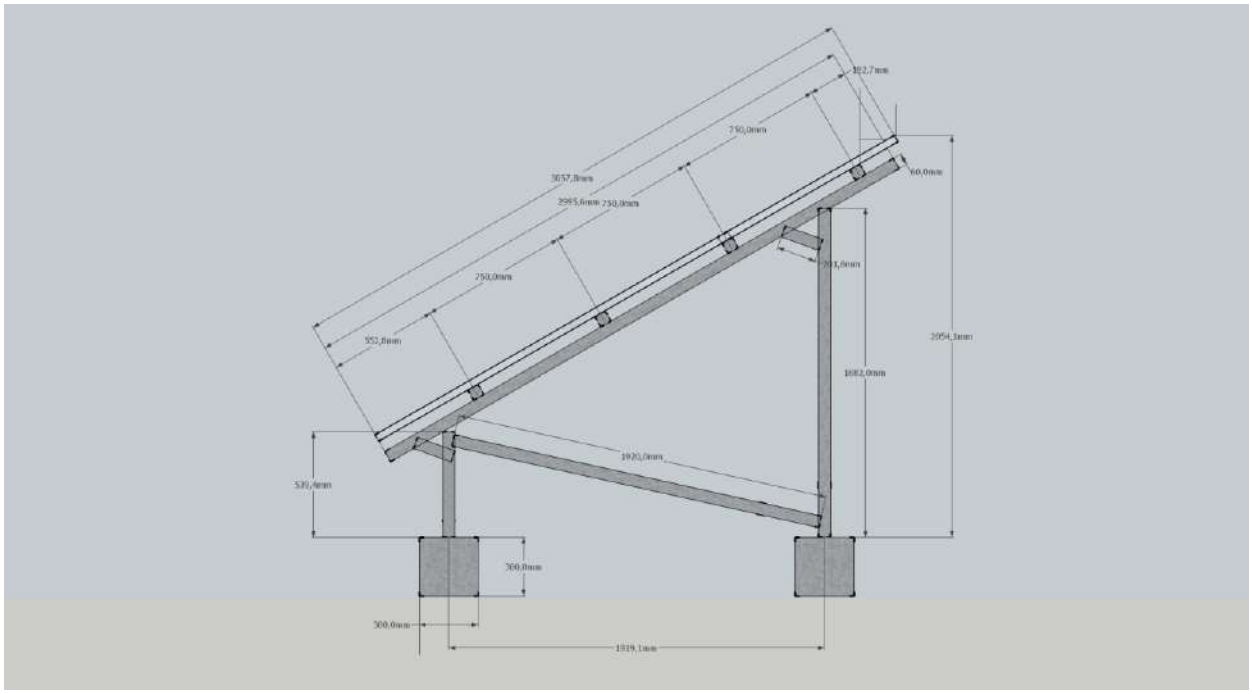
Average Cost assessment for PV Project and realization BASED ON ASSUMPTIONS!!!

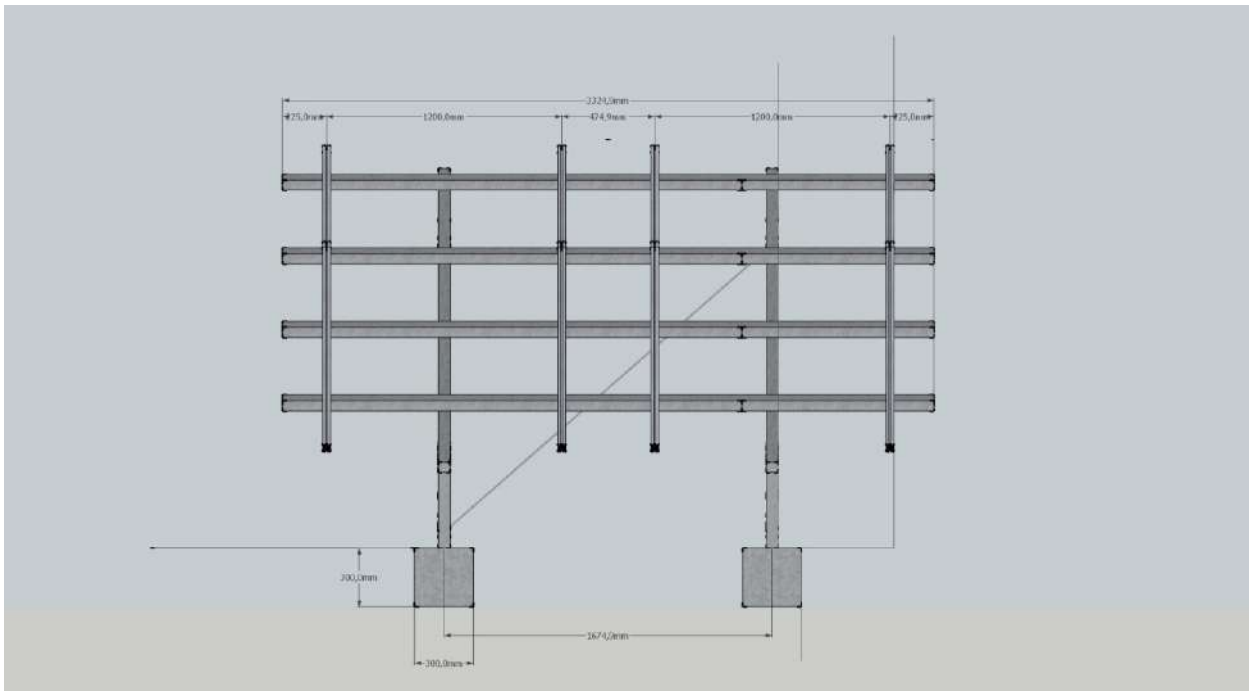
Component cost	€ / MWp	Total cost
Modules		
Inverter		
Electric		
Underconstruction		
Realization cost		
TOTAL	€ 1.705.200,00	€ 2.428.477,00

THESE PRICES ARE NOT TO BE USED IN ANY OTHER FORM THAN INDICATIVE. THEY ARE BASED ON EXPERIENCE AND DO NOT REPRESENT ACTUAL VALUES.

PAYBACK ASSUMPTION		
Total Plant cost	€	2.428.477,00
Managment cost	1,00%	€ 24.284,77
GC sales	€	536.238,96
Payback time (yr)		4,57


23,2 grad
2995,6mm
2098,4mm
386,1mm
6122,8mm
1919,1mm


102,7mm
750,0mm
3057,8mm
2995,6mm
750,0mm
60,0mm
750,0mm
552,8mm
2054,1mm
1682,0mm
1920,0mm
530,4mm
300,0mm
300,0mm
1919,1mm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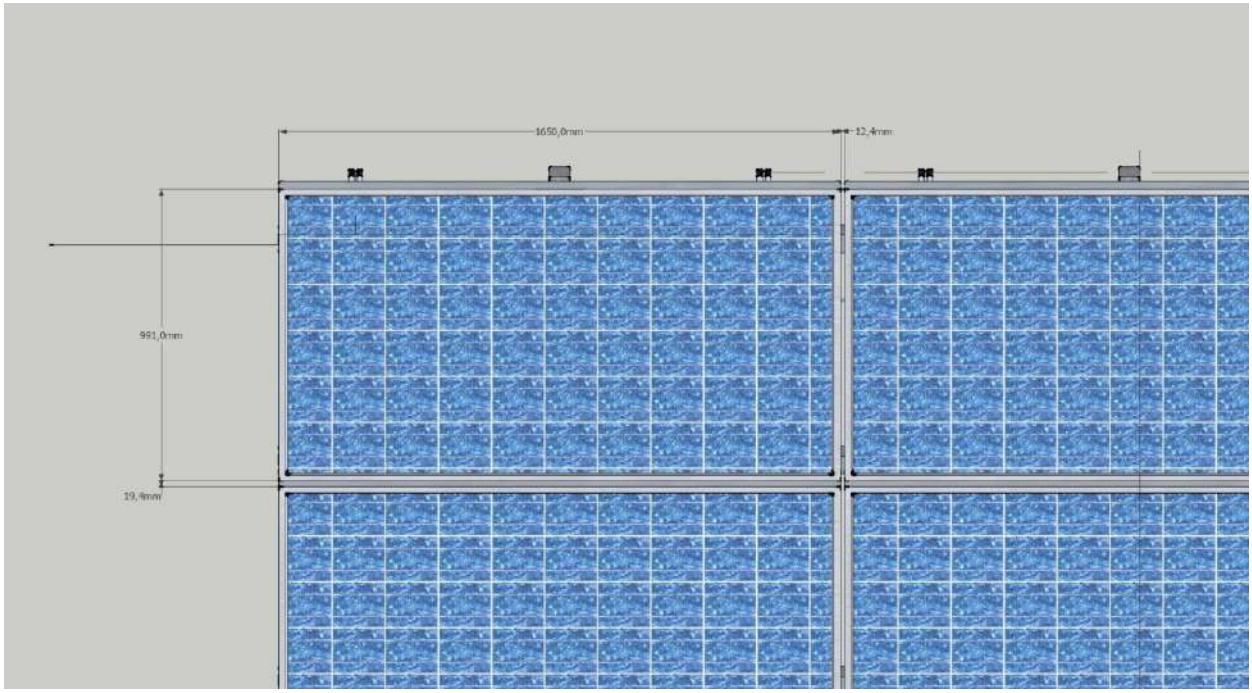
425,0mm
1200,0mm
474,9mm
1200,0mm
425,0mm
300,0mm
1674,0mm
300,0mm


1650,0mm
12,4mm
991,0mm
19,4mm