

cladirea C2 campus preuniversitar, ioan flueras ,nr 10C, Arad

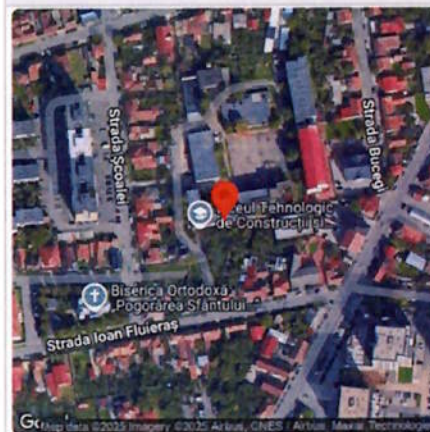
Report

Project Name	campus preuniversitar
Project Address	ioan flueras ,nr 10C, Arad
Prepared By	Cosmin Turbatu fotovoltaice@proexib.ro

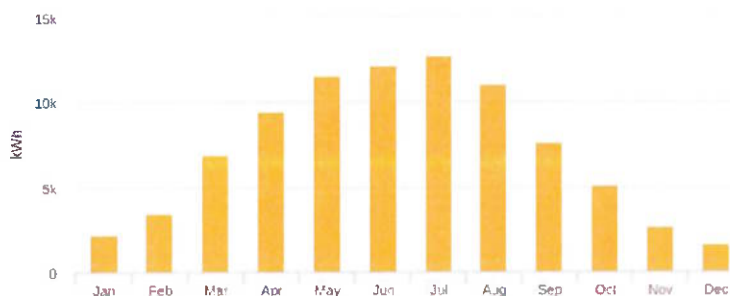
System Metrics

Design	cladirea C2
Module DC Nameplate	80.50 kW
Inverter AC Nameplate	80.00 kW Load Ratio: 1.01
Annual Production	86.61 MWh
Performance Ratio	84.9%
kWh/kWp	1,075.9
Weather Dataset	TMV, 10km Grid, Meteonorm 8 (meteonorm_v8)
Simulator Version	758048cd72-ac9881ff59-242e6d61b8-0fc3879858

Project Location

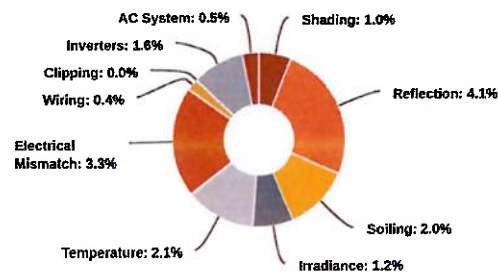


Monthly Production



Month	GHI (kWh/m ²)	POA (kWh/m ²)	Shaded (kWh/m ²)	Nameplate (kWh)	Grid (kWh)
January	32.7	32.5	32.0	2,352.6	2,210.6
February	49.7	49.3	48.7	3,638.4	3,450.7
March	99.0	98.1	97.1	7,323.2	6,882.0
April	137.3	135.9	134.5	10,204.0	9,459.4
May	170.0	168.1	166.5	12,685.5	11,564.3
June	181.3	179.1	177.4	13,518.4	12,176.9
July	191.5	189.3	187.6	14,309.0	12,758.7
August	166.5	164.7	163.2	12,409.3	11,071.5
September	112.9	111.9	110.8	8,379.9	7,613.2
October	75.8	75.2	74.4	5,557.3	5,140.5
November	39.5	39.2	38.7	2,856.4	2,649.3
December	24.5	24.2	24.0	1,759.6	1,630.9

Sources of System Loss



⚡ Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,280.7	
	POA Irradiance	1,267.4	-1.0%
	Shaded Irradiance	1,254.9	-1.0%
	Irradiance after Reflection	1,203.7	-4.1%
	Irradiance after Soiling	1,179.6	-2.0%
	Total Collector Irradiance	1,179.6	0.0%
Energy (kWh)	Nameplate	94,993.7	
	Output at Irradiance Levels	93,817.7	-1.2%
	Output at Cell Temperature Derate	91,818.4	-2.1%
	Output after Electrical Mismatch	88,774.5	-3.3%
	Optimal DC Output	88,459.2	-0.4%
	Constrained DC Output	88,458.4	0.0%
	Inverter Output	87,043.1	-1.6%
	Energy to Grid	86,607.9	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp	15.1 °C	
	Avg. Operating Cell Temp	21.8 °C	
Simulation Metrics			
	Operating Hours	4624	
	Solved Hours	4624	

☁ Condition Set

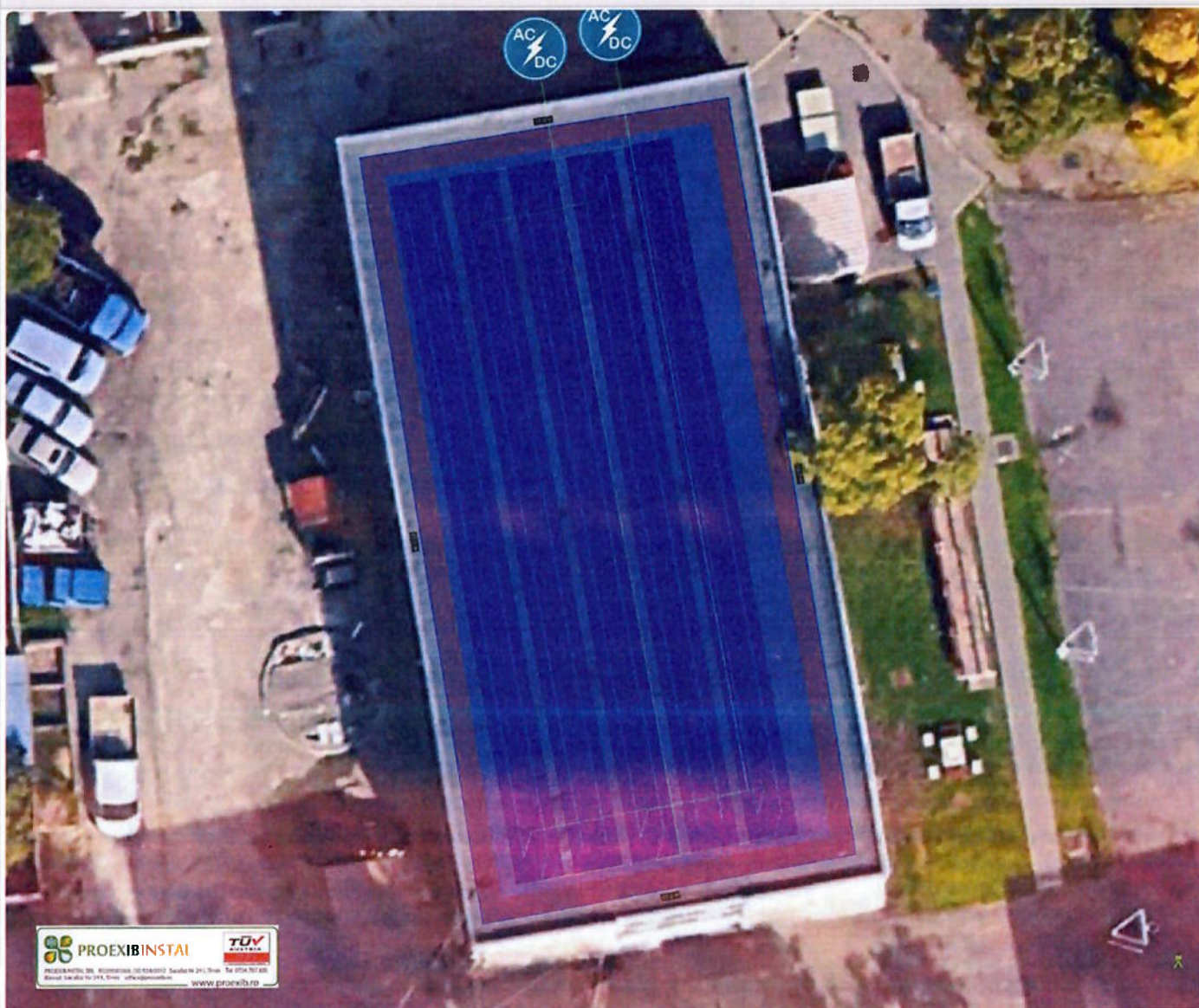
Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid, Meteororm 8 (meteororm_v8)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type			a		b		Temperature Delta				
	Fixed Tilt			-3.56		-0.075		3°C				
	Flush Mount			-2.81		-0.0455		0°C				
	East-West			-3.56		-0.075		3°C				
	Carport			-3.56		-0.075		3°C				
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Albedo	J	F	M	A	M	J	J	A	S	O	N	D
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Rear Mismatch Loss	10%				Rear Shading Factor				5%			
Module Transparency	0%											
Irradiation Varlance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module & Component Characterizations	Type	Component						Characterization				Bifacial
	Module	LR5-72HTH 575M (Longi)						Spec Sheet Characterization, PAN				False
	Inverter	SUN2000-40KTL-M3 (400V) (2022) (Huawei)						Spec Sheet				N/A

Components		
Component	Name	Count
Inverters	SUN2000-40KTL-M3 (400V) (2022) (Huawei)	2 (80.00 kW)
Strings	6 mm2 (Copper)	10 (566.8 m)
Module	Longi, LR5-72HTH 575M (575W)	140 (80.50 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-17	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	East-West	Landscape (Horizontal)	15°	169,69516°	0.5 m	1x1	70	140	80.50 kW

Detailed Layout2



CLADIREA c3 campus preuniversitar, ioan flueraș ,nr 10C, Arad

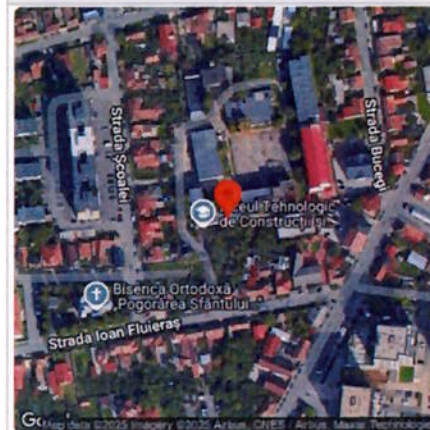
Report

Project Name	campus preuniversitar
Project Address	ioan flueraș ,nr 10C, Arad
Prepared By	Cosmin Turbatu fotovoltaice@proxib.ro

System Metrics

Design	CLADIREA c3
Module DC Nameplate	48.30 kW
Inverter AC Nameplate	50.00 kW Load Ratio: 0.97
Annual Production	51.64 MWh
Performance Ratio	84.4%
kWh/kWp	1,069.2
Weather Dataset	TMY, 10km Grid, Meteonorm 8 (meteonorm_v8)
Simulator Version	758048cd72-ac9881ff59-242e6d61b8-0fc3879858

Project Location

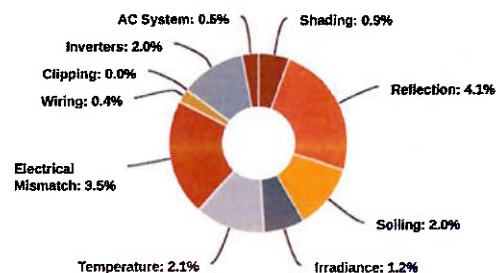


Monthly Production



Month	GHI (kWh/m ²)	POA (kWh/m ²)	Shaded (kWh/m ²)	Nameplate (kWh)	Grid (kWh)
January	32.7	32.4	32.0	1,413.2	1,319.7
February	49.7	49.3	48.7	2,184.7	2,059.0
March	99.0	98.1	97.2	4,396.3	4,103.0
April	137.3	135.9	134.6	6,127.2	5,643.3
May	170.0	168.1	166.6	7,616.6	6,896.4
June	181.3	179.1	177.4	8,115.4	7,255.7
July	191.5	189.3	187.6	8,589.6	7,601.6
August	166.5	164.7	163.3	7,451.1	6,603.9
September	112.9	111.9	110.9	5,031.6	4,539.6
October	75.8	75.2	74.4	3,336.6	3,065.2
November	39.5	39.2	38.7	1,714.1	1,579.4
December	24.5	24.2	24.0	1,055.9	973.4

Sources of System Loss



⚡ Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,280.7	
	POA Irradiance	1,267.5	-1.0%
	Shaded Irradiance	1,255.6	-0.9%
	Irradiance after Reflection	1,204.4	-4.1%
	Irradiance after Soiling	1,180.3	-2.0%
	Total Collector Irradiance	1,180.3	0.0%
Energy (kWh)	Nameplate	57,032.4	
	Output at Irradiance Levels	56,327.3	-1.2%
	Output at Cell Temperature Derate	55,125.9	-2.1%
	Output after Electrical Mismatch	53,177.5	-3.5%
	Optimal DC Output	52,959.4	-0.4%
	Constrained DC Output	52,959.0	0.0%
	Inverter Output	51,899.8	-2.0%
	Energy to Grid	51,640.3	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp	15.1 °C	
	Avg. Operating Cell Temp	21.8 °C	
Simulation Metrics			
	Operating Hours	4624	
	Solved Hours	4624	

☁ Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid, Meteoronorm 8 (meteoronorm_v8)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type				a		b		Temperature Delta			
	Fixed Tilt				-3.56		-0.075		3°C			
	Flush Mount				-2.81		-0.0455		0°C			
	East-West				-3.56		-0.075		3°C			
	Carport				-3.56		-0.075		3°C			
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Albedo	J	F	M	A	M	J	J	A	S	O	N	D
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Rear Mismatch Loss	10%				Rear Shading Factor				5%			
Module Transparency	0%											
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module & Component Characterizations	Type	Component						Characterization				Bifacial
	Module	LRS-72HTH 575M (Longi)						Spec Sheet Characterization, PAN				False
	Inverter	SUN2000-50KTL-M3 (400V) (Huawei)						Spec Sheet				N/A

Components

Component	Name	Count
Inverters	SUN2000-50KTL-M3 (400V) (Huawei)	1 (50.00 kW)
Strings	6 mm2 (Copper)	6 (241.1 m)
Module	Longi, LR5-72HTH 575M (575W)	84 (48.30 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-17	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	East-West	Landscape (Horizontal)	15°	172.67809°	0.5 m	1x1	42	84	48.30 kW

Detailed Layout2



cladirea C4 campus preuniversitar, ioan flueraș ,nr 10C, Arad

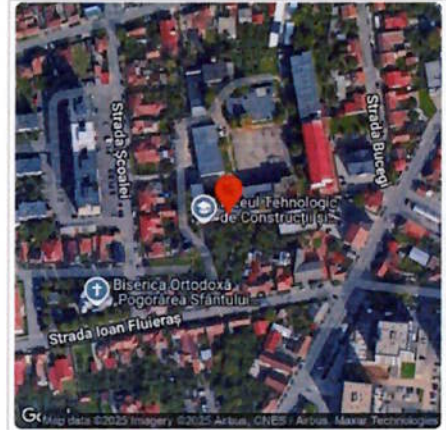
Report

Project Name	campus preuniversitar
Project Address	ioan flueraș ,nr 10C, Arad
Prepared By	Cosmin Turbatu fotovoltaice@proxib.ro

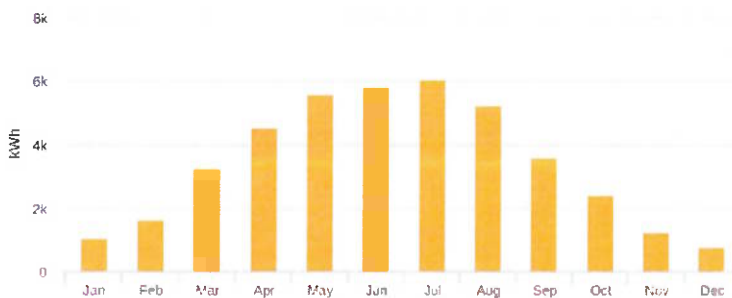
System Metrics

Design	cladirea C4
Module DC Nameplate	41.40 kW
Inverter AC Nameplate	40.00 kW Load Ratio: 1.04
Annual Production	41.19 MWh
Performance Ratio	78.5%
kWh/kWp	994.9
Weather Dataset	TMY, 10km Grid, Meteonorm 8 (meteonorm_v8)
Simulator Version	758048cd72-ac9881ff59-242e6d61b8-0fc3879858

Project Location

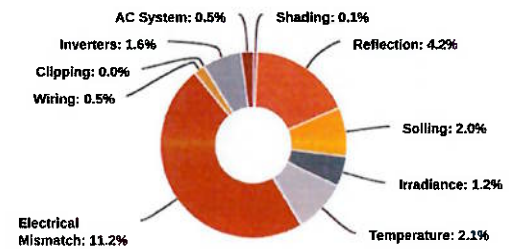


Monthly Production



Month	GHI (kWh/m²)	POA (kWh/m²)	Shaded (kWh/m²)	Nameplate (kWh)	Grid (kWh)
January	32.7	32.4	32.4	1,224.4	1,042.3
February	49.7	49.3	49.2	1,888.4	1,653.0
March	99.0	98.1	98.0	3,794.2	3,251.1
April	137.3	135.9	135.7	5,288.3	4,521.0
May	170.0	168.1	167.9	6,568.7	5,575.6
June	181.3	179.1	178.9	7,003.1	5,823.9
July	191.5	189.3	189.0	7,406.2	6,060.6
August	166.5	164.7	164.5	6,426.4	5,245.0
September	112.9	111.9	111.7	4,339.8	3,599.3
October	75.8	75.2	75.1	2,883.9	2,413.2
November	39.5	39.2	39.1	1,483.9	1,236.7
December	24.5	24.2	24.2	912.4	766.7

Sources of System Loss



⚡ Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,280.7	
	POA Irradiance	1,267.4	-1.0%
	Shaded Irradiance	1,265.6	-0.1%
	Irradiance after Reflection	1,212.6	-4.2%
	Irradiance after Soiling	1,188.3	-2.0%
	Total Collector Irradiance	1,188.5	0.0%
Energy (kWh)	Nameplate	49,219.6	
	Output at Irradiance Levels	48,618.2	-1.2%
	Output at Cell Temperature Derate	47,579.5	-2.1%
	Output after Electrical Mismatch	42,262.3	-11.2%
	Optimal DC Output	42,068.8	-0.5%
	Constrained DC Output	42,068.5	0.0%
	Inverter Output	41,395.4	-1.6%
	Energy to Grid	41,188.4	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp	15.1 °C	
	Avg. Operating Cell Temp	21.9 °C	
Simulation Metrics			
	Operating Hours	4624	
	Solved Hours	4624	

🏠 Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid, Meteonorm 8 (meteonorm_v8)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type		a		b		Temperature Delta					
	Fixed Tilt		-3.56		-0.075		3°C					
	Flush Mount		-2.81		-0.0455		0°C					
	East-West		-3.56		-0.075		3°C					
	Carport		-3.56		-0.075		3°C					
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Albedo	J	F	M	A	M	J	J	A	S	O	N	D
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Rear Mismatch Loss	10%			Rear Shading Factor					5%			
Module Transparency	0%											
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module & Component Characterizations	Type	Component						Characterization				Bifacial
	Module	LRS-72HTH 575M (Longi)						Spec Sheet Characterization, PAN				False
	Inverter	SUN2000-40KTL-M3 (400V) (2022) (Huawei)						Spec Sheet				N/A

Components

Component	Name	Count
Inverters	SUN2000-40KTL-M3 (400V) (2022) (Huawei)	1 (40.00 kW)
Strings	6 mm2 (Copper)	5 (360.0 m)
Module	Longi, LR5-72HTH 575M (575W)	72 (41.40 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-17	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	East-West	Landscape (Horizontal)	15°	168.36636°	0.1 m	1x1	18	36	20.70 kW
Field Segment 2	East-West	Landscape (Horizontal)	15°	172.40535°	0.1 m	1x1	18	36	20.70 kW

cladirea C8 campus preuniversitar, ioan flueraș ,nr 10C, Arad

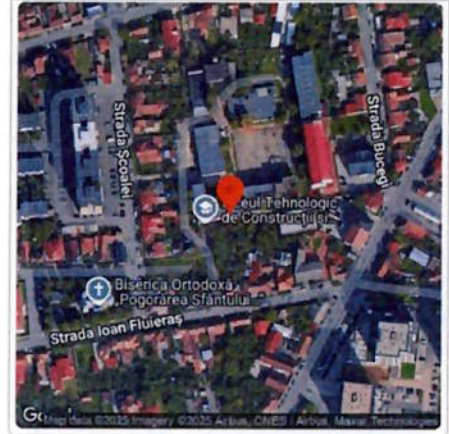
Report

Project Name	campus preuniversitar
Project Address	ioan flueraș ,nr 10C, Arad
Prepared By	Cosmin Turbatu fotovoltalce@proxib.ro

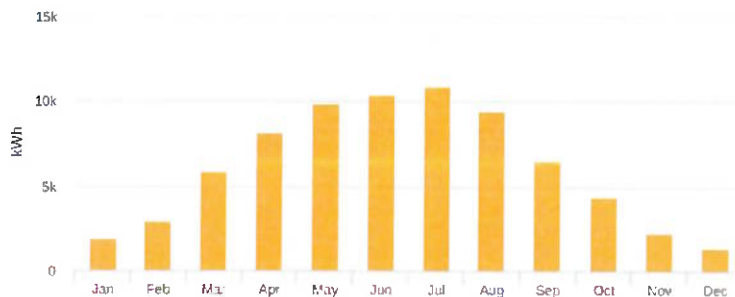
System Metrics

Design	cladirea C8
Module DC Nameplate	69.00 kW
Inverter AC Nameplate	72.00 kW Load Ratio: 0.96
Annual Production	74.10 MWh
Performance Ratio	84.7%
kWh/kWp	1,074.0
Weather Dataset	TMY, 10km Grid, Meteororm 8 (meteororm_v8)
Simulator Version	758048cd72-ac9881ff59-242e6d61b8-0fc3879858

Project Location

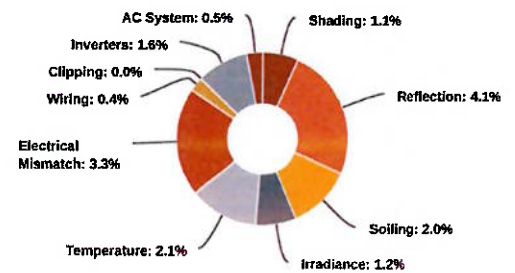


Monthly Production



Month	GHI (kWh/m ²)	POA (kWh/m ²)	Shaded (kWh/m ²)	Nameplate (kWh)	Grid (kWh)
January	32.7	32.5	32.0	2,014.3	1,890.5
February	49.7	49.3	48.6	3,115.6	2,953.5
March	99.0	98.1	97.0	6,271.8	5,887.6
April	137.3	135.9	134.4	8,739.8	8,095.7
May	170.0	168.1	166.4	10,865.6	9,892.8
June	181.3	179.1	177.2	11,577.9	10,419.7
July	191.5	189.3	187.4	12,256.6	10,917.4
August	166.5	164.7	163.0	10,627.4	9,473.9
September	112.9	111.9	110.7	7,176.5	6,512.8
October	75.8	75.2	74.3	4,758.3	4,395.5
November	39.5	39.2	38.7	2,446.1	2,265.7
December	24.5	24.2	24.0	1,507.4	1,397.5

Sources of System Loss



⚡ Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,280.7	
	POA Irradiance	1,267.4	-1.0%
	Shaded Irradiance	1,253.6	-1.1%
	Irradiance after Reflection	1,202.7	-4.1%
	Irradiance after Soiling	1,178.6	-2.0%
	Total Collector Irradiance	1,178.6	0.0%
Energy (kWh)	Nameplate	81,357.3	
	Output at Irradiance Levels	80,348.5	-1.2%
	Output at Cell Temperature Derate	78,637.4	-2.1%
	Output after Electrical Mismatch	76,018.6	-3.3%
	Optimal DC Output	75,686.5	-0.4%
	Constrained DC Output	75,685.9	0.0%
	Inverter Output	74,475.0	-1.6%
	Energy to Grid	74,102.6	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp	15.1 °C	
	Avg. Operating Cell Temp	21.8 °C	
Simulation Metrics			
	Operating Hours	4624	
	Solved Hours	4624	

☁ Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid, Meteonorm 8 (meteonorm_v8)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type				a		b		Temperature Delta			
	Fixed Tilt				-3.56		-0.075		3°C			
	Flush Mount				-2.81		-0.0455		0°C			
	East-West				-3.56		-0.075		3°C			
	Carport				-3.56		-0.075		3°C			
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Albedo	J	F	M	A	M	J	J	A	S	O	N	D
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Rear Mismatch Loss	10%				Rear Shading Factor				5%			
Module Transparency	0%											
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Blinning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module & Component Characterizations	Type	Component					Characterization					Bifacial
	Module	LR5-72HTH 575M (Longi)					Spec Sheet Characterization, PAN					False
	Inverter	SUN2000-36KTL-M3 (Huawei)					Spec Sheet					N/A

Components		
Component	Name	Count
Inverters	SUN2000-36KTL-M3 (Huawei)	2 (72.00 kW)
Strings	6 mm2 (Copper)	8 (448.9 m)
Module	Longi, LRS-72HTH 575M (575W)	120 (69.00 kW)

Wiring Zones									
Description	Combiner Poles		String Size		Stringing Strategy				
Wiring Zone	-		5-17		Along Racking				

Field Segments									
Description	RackIng	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	East-West	Landscape (Horizontal)	15°	168.7742°	0.5 m	1x1	60	120	69.00 kW

Detailed Layout2

