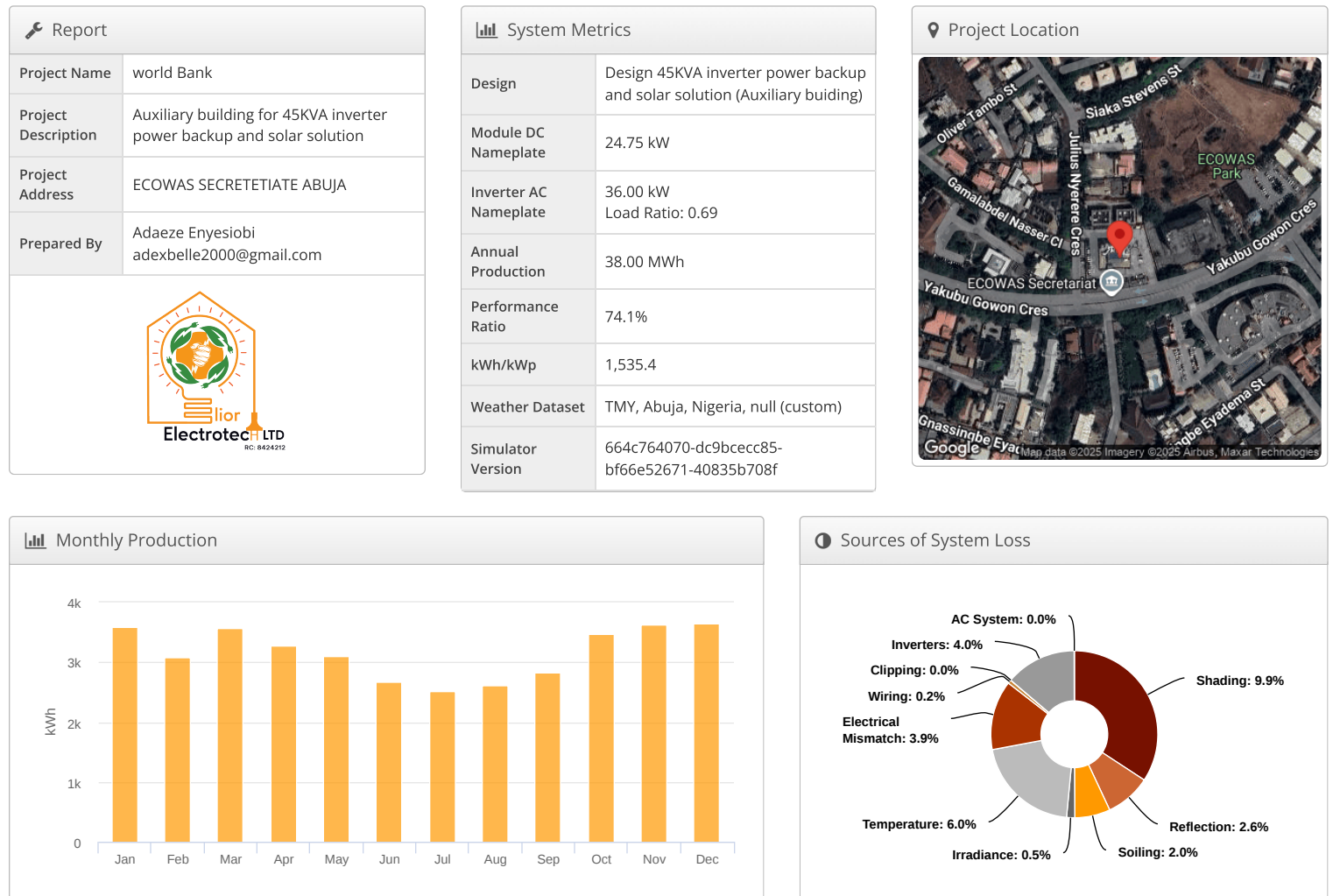


Design 45KVA inverter power backup and solar solution (Auxiliary buiding) world Bank, ECOWAS SECRETETIATE ABUJA



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	2,024.0	
	POA Irradiance	2,071.8	2.4%
	Shaded Irradiance	1,865.7	-9.9%
	Irradiance after Reflection	1,817.9	-2.6%
	Irradiance after Soiling	1,781.6	-2.0%
	Total Collector Irradiance	1,781.5	0.0%
Energy (kWh)	Nameplate	44,107.3	
	Output at Irradiance Levels	43,906.3	-0.5%
	Output at Cell Temperature Derate	41,284.7	-6.0%
	Output after Electrical Mismatch	39,668.8	-3.9%
	Optimal DC Output	39,586.6	-0.2%
	Constrained DC Output	39,586.6	0.0%
	Inverter Output	38,003.2	-4.0%
	Energy to Grid	38,002.4	0.0%
Temperature Metrics			
Avg. Operating Ambient Temp		26.8 °C	
Avg. Operating Cell Temp		37.0 °C	
Simulation Metrics			
Operating Hours		4455	
Solved Hours		4455	

☁ Condition Set												
Description	Condition Set 1											
Weather Dataset	TMY, Abuja, Nigeria, null (custom)											
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	JKM550N-72HL4-BDV (Jinko)						Spec Sheet Characterization, PAN			False	
	Inverter	Victron Hybrid 15KVA + 450/200 (Victron Energy)						Spec Sheet			N/A	

Components		
Component	Name	Count
Inverters	Victron Hybrid 15KVA + 450/200 (Victron Energy)	3 (36.00 kW)
AC Home Runs	6 AWG (Copper)	3 (2.8 ft)
Home Runs	4 AWG (Copper)	6 (589.4 ft)
Combiners	1 input Combiner	6
Strings	6 AWG (Copper)	6 (419.7 ft)
Module	Jinko, JKM550N-72HL4-BDV (550W)	45 (24.75 kW)

Wiring Zones									
Description		Combiner Poles		String Size		Stringing Strategy			
Wiring to the inverter room		2		2-10		Up and Down Racking			

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Auxiliary building	Carport	Portrait (Vertical)	10°	180°	2.0 ft	1x1	45	45	24.75 kW

Detailed Layout2

