

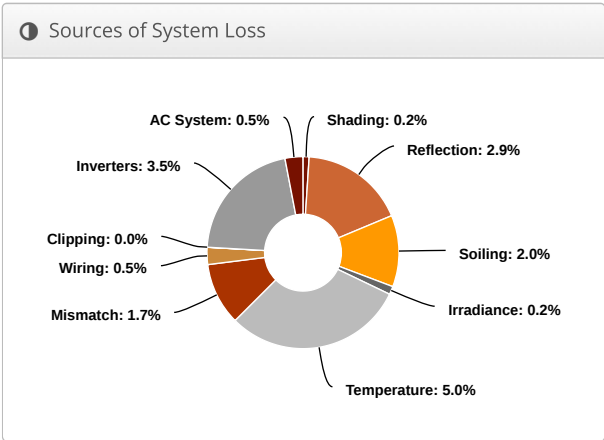
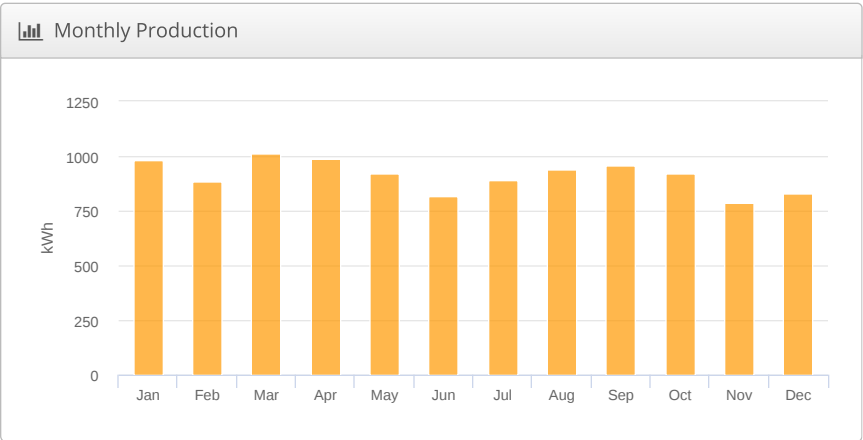
Roof Layout Union Police Station, St. Patrick's Grenada

 Report

Project Name	Union Police Station
Project Description	Union Police CARDTP Project
Project Address	St. Patrick's Grenada
Prepared For	CARDTP Project- RGPF Grenada
Prepared By	Dave Geroge grenadaspicemobile@gmail.com



System Metrics	
Design	Roof Layout
Module DC Nameplate	5.80 kW
Inverter AC Nameplate	5.40 kW Load Ratio: 1.07
Annual Production	10.94 MWh
Performance Ratio	84.5%
kWh/kWp	1,885.4
Weather Dataset	TMY, 0.04° Grid (12.21,-61.66), NREL (psm3)
Simulator Version	d4d46e467c-aa12056117-0f16a8b762-98be4a3938



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	2,179.7	
	POA Irradiance	2,232.4	2.4%
	Shaded Irradiance	2,228.6	-0.2%
	Irradiance after Reflection	2,163.1	-2.9%
	Irradiance after Soiling	2,119.9	-2.0%
	Total Collector Irradiance	2,119.9	0.0%
Energy (kWh)	Nameplate	12,294.2	
	Output at Irradiance Levels	12,266.1	-0.2%
	Output at Cell Temperature Derate	11,647.2	-5.0%
	Output After Mismatch	11,443.9	-1.7%
	Optimal DC Output	11,388.7	-0.5%
	Constrained DC Output	11,388.7	0.0%
	Inverter Output	10,990.1	-3.5%
	Energy to Grid	10,935.2	-0.5%
Temperature Metrics			
Avg. Operating Ambient Temp		27.0 °C	
Avg. Operating Cell Temp		37.5 °C	
Simulation Metrics			
Operating Hours		4307	
Solved Hours		4307	

☁ Condition Set												
Description	Condition Set 1											
Weather Dataset	TMY, 0.04° Grid (12.21,-61.66), NREL (psm3)											
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
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module					Uploaded By		Characterization				
	IBEX 144BF-MHC-TOPCON 580W (Swiss Solar)					HelioScope		Spec Sheet Characterization, PAN				
Component Characterizations	Device					Uploaded By		Characterization				
	HNS5000TL (Afore New Energy)					HelioScope		Default Characterization				

📦 Components		
Component	Name	Count
Inverters	HNS5000TL (Afore New Energy)	1 (5.40 kW)
Strings	10 AWG (Copper)	2 (14.8 m)
Module	Swiss Solar, IBEX 144BF-MHC-TOPCON 580W (580W)	10 (5.80 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone Roof	-	4-9	Along Racking

🏗 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	0.6 m	1x1	5	10	5.80 kW

Detailed Layout2



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☐ Shading by Field Segment									
Description	Tilt	Azimuth	Modules	Nameplate	Shaded Irradiance	AC Energy	TOF ²	Solar Access	Avg TSRF ²
Field Segment 1	Module: 10.0°	Module: 180.0°	10	5.80 kWp	2,228.6kWh/m ²	10.9 MWh ¹	99.7%	99.8%	99.6%
Totals, weighted by kWp			10	5.80 kWp	2,228.6kWh/m ²	10.9 MWh	99.7%	99.8%	99.6%
<div>¹ approximate, varies based on inverter performance</div> <div>² based on location Optimal POA Irradiance of 2,238.4kWh/m² at 14.8° tilt and 181.4° azimuth</div>									

☐ Solar Access by Month													
Description	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	
Field Segment 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Solar Access, weighted by kWp	99.9%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	
AC Power (kWh)	984.4	886.9	1,013.9	987.0	919.9	819.3	890.8	939.8	958.6	918.4	789.5	826.4	

