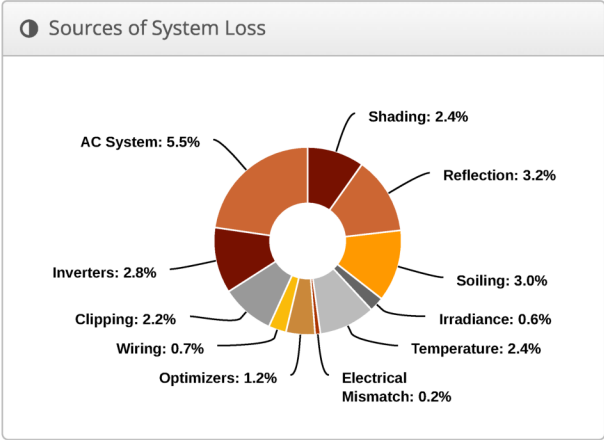
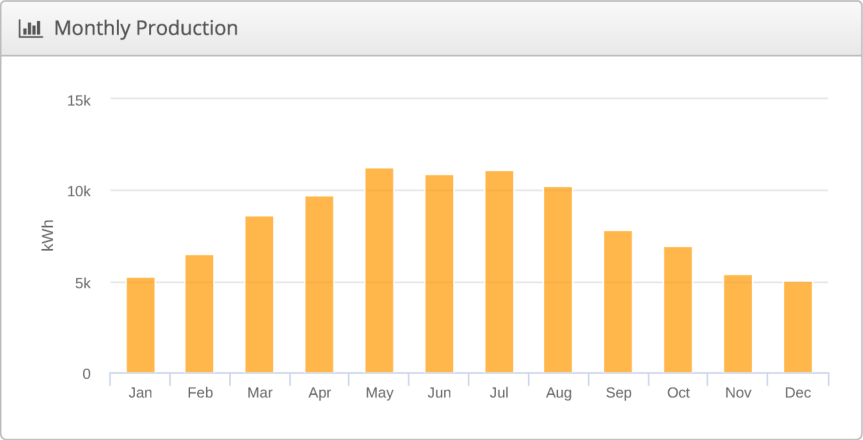
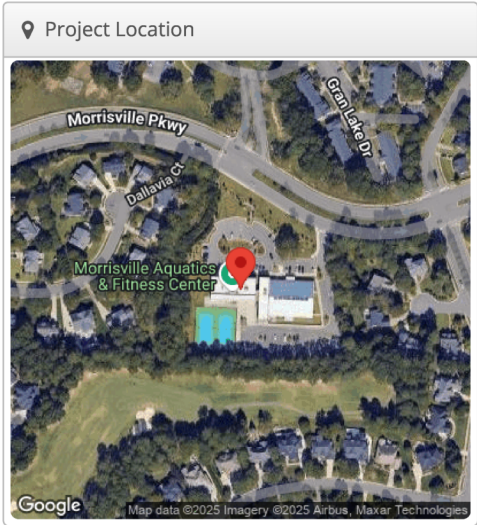


MAFC Parking Canopies - PLP Single Cantilever - SEG 485W - 74.21kWdc - 07082025

Town of Morrisville Aquatics and Fitness Center, 1301 Morrisville Parkway

Report	
Project Name	Town of Morrisville Aquatics and Fitness Center
Project Address	1301 Morrisville Parkway
Prepared By	Phelps Clarke phelps.clarke@piscaghenenergy.com

System Metrics	
Design	MAFC Parking Canopies - PLP Single Cantilever - SEG 485W - 74.21kWdc - 07082025
Module DC Nameplate	74.21 kW
Inverter AC Nameplate	54.60 kW Load Ratio: 1.36
Annual Production	98.97 MWh
Performance Ratio	79.4%
kWh/kWp	1,333.7
Weather Dataset	TMY, 10km grid (35.85,-78.85), NREL (prospector)
Simulator Version	e7913597e6-508a97c666-89cf8395ec-627ec51aaf



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,625.4	
	POA Irradiance	1,680.6	3.4%
	Shaded Irradiance	1,640.6	-2.4%
	Irradiance after Reflection	1,587.5	-3.2%
	Irradiance after Soiling	1,539.8	-3.0%
	Total Collector Irradiance	1,539.9	0.0%
Energy (kWh)	Nameplate	116,000.9	
	Output at Irradiance Levels	115,289.8	-0.6%
	Output at Cell Temperature Derate	112,573.6	-2.4%
	Output after Electrical Mismatch	112,322.6	-0.2%
	Optimizer Output	110,958.2	-1.2%
	Optimal DC Output	110,141.8	-0.7%
	Constrained DC Output	107,694.8	-2.2%
	Inverter Output	104,728.9	-2.8%
	Energy to Grid	98,968.8	-5.5%
Temperature Metrics			
Avg. Operating Ambient Temp		18.2 °C	
Avg. Operating Cell Temp		25.6 °C	
Simulation Metrics			
Operating Hours		4664	
Solved Hours		4664	

☁ Condition Set													
Description	10km Grid, 3% Soiling, Diffusion (Temp Coeff = 31, Carport), SEG Mismatch -0/+3%, AC System Derate 5.5% (1.5% LID, 1.5% Clip, 1.5% AC Ohmic Loss, 1% Unavailability)												
Weather Dataset	TMY, 10km grid (35.85,-78.85), NREL (prospector)												
Solar Angle Location	Meteo Lat/Lng												
Transposition Model	Perez Model												
Temperature Model	Diffusion Model												
Temperature Model Parameters	Rack Type						U _{const}			U _{wind}			
	Fixed Tilt						29			0			
	Flush Mount						15			0			
	East-West						29			0			
	Carport						31			0			
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D	
	3	3	3	3	3	3	3	3	3	3	3	3	
Irradiation Variance	5%												
Cell Temperature Spread	4° C												
Module Binning Range	0% to 3%												
AC System Derate	5.50%												
Module & Component Characterizations	Type	Component						Characterization					
	Module	SEG-485-BTB-BG (SEG Solar)						Spec Sheet Characterization, PAN					
	Inverter	SE17.3KUS (2021) (SolarEdge)						Spec Sheet					
	Inverter	SE10KUS (2022) (SolarEdge)						Spec Sheet					
	Buck Boost Optimizer	S1201 (SolarEdge)						Mfg Spec Sheet					

Components		
Component	Name	Count
Inverters	SE17.3KUS (2021) (SolarEdge)	2 (34.60 kW)
Inverters	SE10KUS (2022) (SolarEdge)	2 (20.00 kW)
Strings	10 AWG (Copper)	8 (4,083.9 ft)
Optimizers	S1201 (SolarEdge)	80 (96.00 kW)
Module	SEG Solar, SEG-485-BTB-BG (485W)	153 (74.21 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Canopy 1	-	25-26	Along Racking
Canopy 2	-	15-15	Along Racking
Canopy 3	-	15-15	Along Racking
Canopy 4	-	21-21	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Canopy 1	Carport	Portrait (Vertical)	7°	92.092896°	0.1 ft	1x1	51	51	24.74 kW
Canopy 2	Carport	Portrait (Vertical)	7°	162°	0.1 ft	1x1	30	30	14.55 kW
Canopy 3	Carport	Portrait (Vertical)	7°	182°	0.1 ft	1x1	30	30	14.55 kW
Canopy 4	Carport	Portrait (Vertical)	7°	215°	0.1 ft	1x1	42	42	20.37 kW

Detailed Layout2

