Design 1 UKZN Westville, ukzn westville campus

Report

Project Name	UKZN Westville
Project Address	ukzn westville campus
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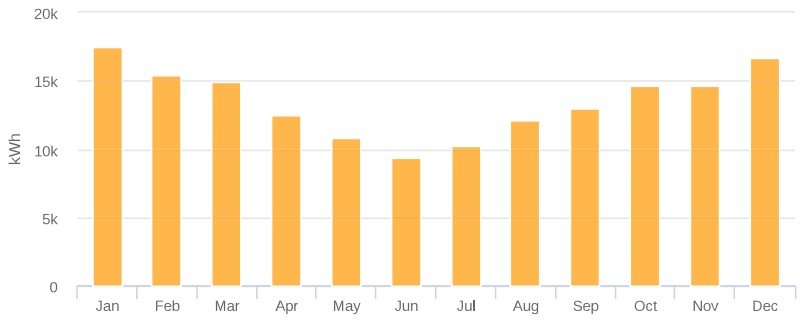
System Metrics

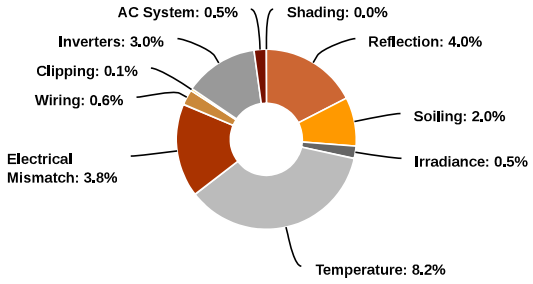
Design	Design 1
Module DC Nameplate	115.20 kW
Inverter AC Nameplate	125.00 kW Load Ratio: 0.92
Annual Production	161.8 MWh
Performance Ratio	79.2%
kWh/kWp	1,404.8
Weather Dataset	TMY, 10km Grid, Meteonorm 8 (meteonorm_v8)
Simulator Version	b9fb931fc8-e0a23959a7-496ba86441-8df7c852f0

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,763.9	
	POA Irradiance	1,774.5	0.6%
	Shaded Irradiance	1,774.4	0.0%
	Irradiance after Reflection	1,703.9	-4.0%
	Irradiance after Soiling	1,669.8	-2.0%
	Total Collector Irradiance	**1,669.7**	**0.0%**
Energy (kWh)	Nameplate	192,439.4	
	Output at Irradiance Levels	191,468.3	-0.5%
	Output at Cell Temperature Derate	175,685.6	-8.2%
	Output after Electrical Mismatch	168,952.6	-3.8%
	Optimal DC Output	167,867.9	-0.6%
	Constrained DC Output	167,728.7	-0.1%
	Inverter Output	162,646.2	-3.0%
	Energy to Grid	**161,833.0**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp	21.3 °C	
	Avg. Operating Cell Temp	40.4 °C	
Simulation Metrics			
	Operating Hours	4570	
	Solved Hours	4570	

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	LR5-72HTHF-600M (Longi)	Spec Sheet Characterization, PAN	False
Inverter	Solstice 125kW CE (400V) (Satcon)	Default Characterization	N/A

Components

Component	Name	Count
Inverters	Solstice 125kW CE (400V) (Satcon)	1 (125.00 kW)
Strings	10 AWG (Copper)	11 (1,121.6 m)
Module	Longi, LR5-72HTHF-600M (600W)	192 (115.20 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	15-18	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Flush Mount	Landscape (Horizontal)	5.6°	319.88214°	0.0 m	4x4	2	32	19.20 kW
Field Segment 2	Flush Mount	Landscape (Horizontal)	2.8°	146.6122°	0.0 m	4x4	2	32	19.20 kW
Field Segment 3	Flush Mount	Landscape (Horizontal)	5°	326.42346°	0.0 m	4x4	1	32	19.20 kW
Field Segment 4	Flush Mount	Landscape (Horizontal)	3°	315.20587°	0.0 m	4x4	2	32	19.20 kW
Field Segment 5	Flush Mount	Landscape (Horizontal)	3°	134.65346°	0.0 m	4x4	19	64	38.40 kW

Detailed Layout2