Case Study 5 - Ground Mount, India

Case Study 5 - Ground Mount, India, 18.5814680, 73.95

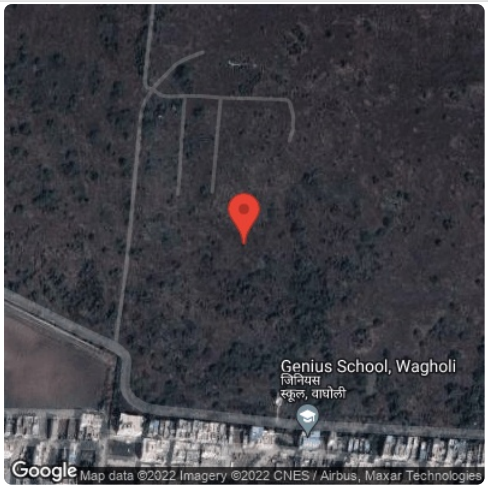
Report

Project Name	Case Study 5 - Ground Mount, India
Project Address	18.5814680, 73.95
Prepared By	Bhanu Swaroop Gaddam gaddambhanu9@gmail.com

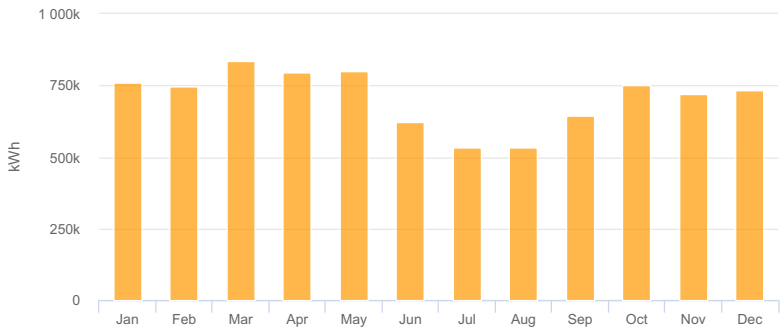
System Metrics

Design	Case Study 5 - Ground Mount, India
Module DC Nameplate	4.92 MW
Inverter AC Nameplate	4.00 MW Load Ratio: 1.23
Annual Production	8.465 GWh
Performance Ratio	78.7%
kWh/kWp	1,718.8
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
Simulator Version	77eaf2cdb5-02f2a7f506-20068b956b-d70d5f9ff0

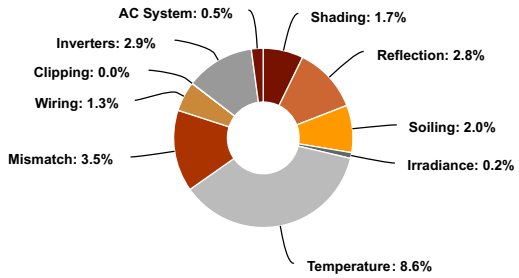
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	2,050.2	
	POA Irradiance	2,184.1	6.5%
	Shaded Irradiance	2,147.0	-1.7%
	Irradiance after Reflection	2,087.2	-2.8%
	Irradiance after Soiling	2,045.5	-2.0%
	Total Collector Irradiance	**2,045.5**	**0.0%**
Energy (kWh)	Nameplate	10,081,649.9	
	Output at Irradiance Levels	10,057,094.1	-0.2%
	Output at Cell Temperature Derate	9,193,983.1	-8.6%
	Output After Mismatch	8,876,313.3	-3.5%
	Optimal DC Output	8,763,451.6	-1.3%
	Constrained DC Output	8,762,930.4	0.0%
	Inverter Output	8,507,133.0	-2.9%
	Energy to Grid	**8,464,597.5**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp	27.1 °C	
	Avg. Operating Cell Temp	39.8 °C	
Simulation Metrics			
	Operating Hours	4659	
	Solved Hours	4659	

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
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

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
CS3W-450MS (Canadian Solar)	Folsom Labs	Spec Sheet Characterization, PAN

Component Characterizations

Device	Uploaded By	Characterization
PVS800-MWS-1000kW-20 (Fimer (Formerly ABB))	Folsom Labs	Default Characterization

Components

Component	Name	Count
Inverters	PVS800-MWS-1000kW-20 (Fimer (Formerly ABB))	4 (4.00 MW)
Strings	10 AWG (Copper)	608 (690,411.5 ft)
Module	Canadian Solar, CS3W-450MS (450W)	10,944 (4.92 MW)

Wiring Zones

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

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Ground Mount	Fixed Tilt	Portrait (Vertical)	18°	180°	8.7 ft	2x18	304	10,944	4.92 MW

Detailed Layout