Design 1 Chiriqui, Chiriquí, David, Panamá

Report

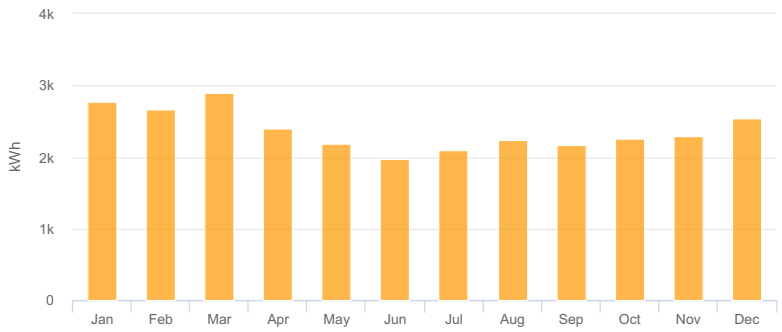
Project Name	Chiriqui
Project Address	Chiriquí, David, Panamá
Prepared By	Ricardo Torres respall@gmail.com

System Metrics

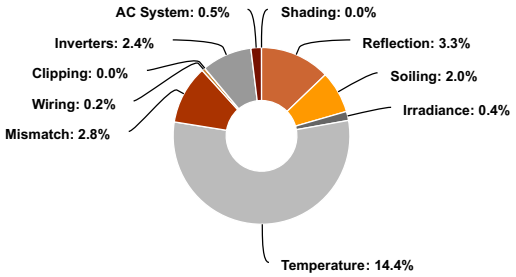
Design	Design 1
Module DC Nameplate	19.2 kW
Inverter AC Nameplate	20.0 kW Load Ratio: 0.96
Annual Production	28.47 MWh
Performance Ratio	76.2%
kWh/kWp	1,482.6
Weather Dataset	TMY, David, Panama, null (custom)
Simulator Version	30e0ed0a01-2e589a52f5-9eaf57d037-cbad0ebfbc

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,908.4	
	POA Irradiance	1,946.0	2.0%
	Shaded Irradiance	1,946.0	0.0%
	Irradiance after Reflection	1,881.2	-3.3%
	Irradiance after Soiling	1,843.5	-2.0%
	Total Collector Irradiance	**1,843.5**	**0.0%**
Energy (kWh)	Nameplate	35,410.5	
	Output at Irradiance Levels	35,258.6	-0.4%
	Output at Cell Temperature Derate	30,195.7	-14.4%
	Output After Mismatch	29,353.2	-2.8%
	Optimal DC Output	29,306.0	-0.2%
	Constrained DC Output	29,305.9	0.0%
	Inverter Output	28,608.3	-2.4%
	Energy to Grid	**28,465.3**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		26.6 °C
	Avg. Operating Cell Temp		47.9 °C
Simulation Metrics			
	Operating Hours		4459
	Solved Hours		4459

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, David, Panama, 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								
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									
	HiKu CS3W 400P (Canadian Solar)	Folsom Labs	Spec Sheet Characterization, PAN									
Component Characterizations	Device	Uploaded By	Characterization									
	SYMO 20.0-3-M (Jan 2016) (Fronius)	Folsom Labs	CEC									

Components

Component	Name	Count
Inverters	SYMO 20.0-3-M (Jan 2016) (Fronius)	1 (20.0 kW)
Strings	6 mm2 (Copper)	3 (31.4 m)
Module	Canadian Solar, HiKu CS3W 400P (400W)	48 (19.2 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Cableado	-	12-20	Up and Down Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Campo1	Flush Mount	Portrait (Vertical)	12°	180°	0.6 m	3x4	48	48	19.2 kW

Detailed Layout