

Case Study 3 - Energie Power, Germany

Moosrosenstraße 7-9, 12347 Berlin, Germany

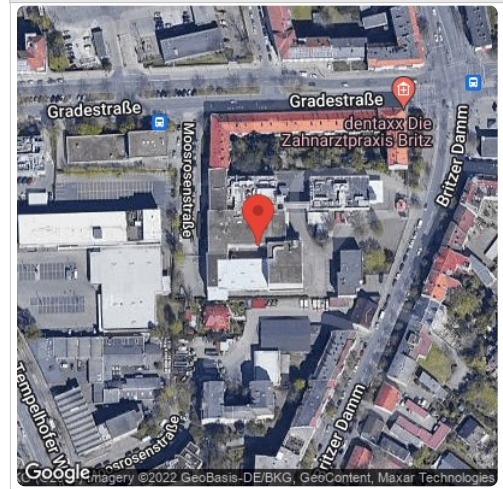
Report

Project Name	Case Study 3 - Energie Power, Germany
Project Address	Moosrosenstraße 7-9, 12347 Berlin, Germany
Prepared By	Bhanu Swaroop Gaddam gaddambhanu9@gmail.com

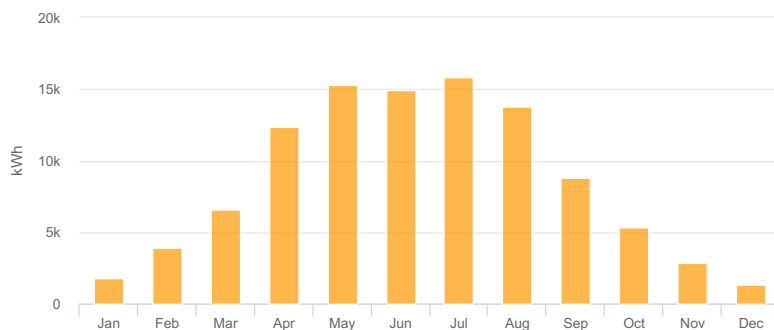
System Metrics

Design	Case Study 3 - Energie Power, Germany
Module DC Nameplate	114.8 kW
Inverter AC Nameplate	100.0 kW Load Ratio: 1.15
Annual Production	102.7 MWh
Performance Ratio	84.8%
kWh/kWp	894.7
Weather Dataset	TMY, BERLIN, IWEK Data (epw)
Simulator Version	77eaf2cdb5-02f2a7f506-20068b956b-d70d5f9ff0

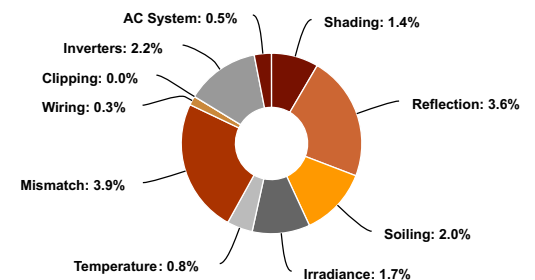
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	985.5	
	POA Irradiance	1,054.8	7.0%
	Shaded Irradiance	1,040.2	-1.4%
	Irradiance after Reflection	1,002.4	-3.6%
	Irradiance after Soiling	982.3	-2.0%
	Total Collector Irradiance	982.3	0.0%
Energy (kWh)	Nameplate	112,818.2	
	Output at Irradiance Levels	110,919.6	-1.7%
	Output at Cell Temperature Derate	110,087.2	-0.8%
	Output After Mismatch	105,784.7	-3.9%
	Optimal DC Output	105,503.3	-0.3%
	Constrained DC Output	105,502.2	0.0%
	Inverter Output	103,232.0	-2.2%
	Energy to Grid	102,715.9	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp		12.2 °C
	Avg. Operating Cell Temp		17.2 °C
Simulation Metrics			
	Operating Hours	4599	
	Solved Hours	4599	

☁ Condition Set													
Description	Condition Set 1												
Weather Dataset	TMY, BERLIN, IWEC Data (epw)												
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					
	TSM-PD14 320 (May16) (Trina Solar)					Folsom Labs		Spec Sheet Characterization, PAN					
	CS3L-350P (1000V) (Canadian Solar)					Folsom Labs		Spec Sheet Characterization, PAN					
Component Characterizations	Device			Uploaded By					Characterization				

📦 Components		
Component	Name	Count
Inverters	50KTL-M (SunGrow)	1 (50.0 kW)
Inverters	SG25CX-SA (Sungrow)	2 (50.0 kW)
Strings	10 AWG (Copper)	17 (2,521.5 ft)
Module	Canadian Solar, CS3L-350P (1000V) (350W)	328 (114.8 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	10-22	Along Racking
Wiring Zone 2	-	7-24	Along Racking
Wiring Zone 3	-	7-24	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Roof 1	Fixed Tilt	Landscape (Horizontal)	10°	180°	2.0 ft	1x1	174	163	57.1 kW
Roof 2	Fixed Tilt	Landscape (Horizontal)	10°	180°	2.0 ft	1x1	84	83	29.1 kW
Roof 3	Fixed Tilt	Landscape (Horizontal)	10°	180°	2.0 ft	1x1	106	82	28.7 kW
Roof 4	Fixed Tilt	Landscape (Horizontal)	10°	180°	2.0 ft	1x1	4	0	0

Detailed Layout

