FAB (copy) PSU Solar District Cup, 1930 SW 4th Ave, Portland, OR 97201

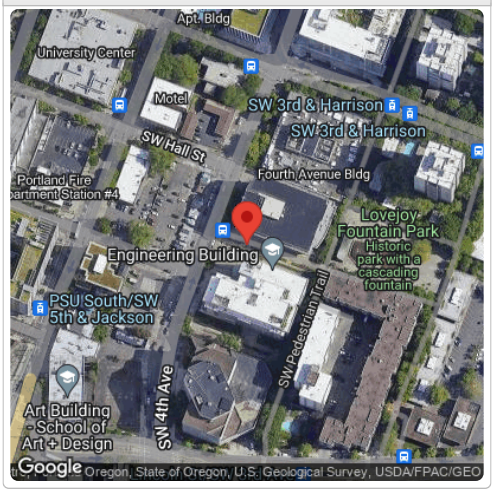
Report

Project Name	PSU Solar District Cup
Project Address	1930 SW 4th Ave, Portland, OR 97201
Prepared By	Lorin Basche lbasche@pdx.edu

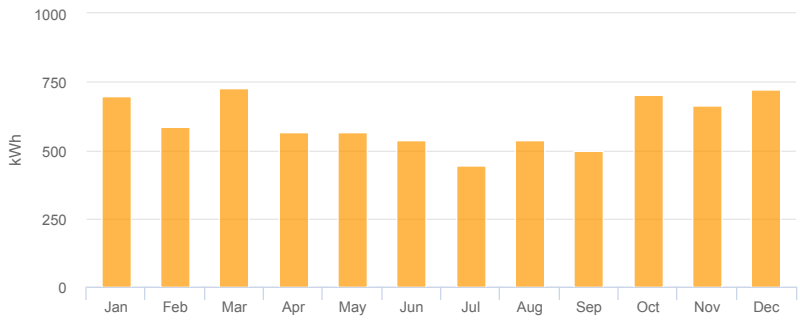
System Metrics

Design	FAB (copy)
Module DC Nameplate	85.7 kW
Inverter AC Nameplate	6.00 kW Load Ratio: 14.28
Annual Production	7.247 MWh
Performance Ratio	6.0%
kWh/kWp	84.6
Weather Dataset	TMY, 10km grid (45.55,-122.65), NREL (prospector)
Simulator Version	8716a40dd1-36458414d6-5d33bc25d0-71a0d471a2

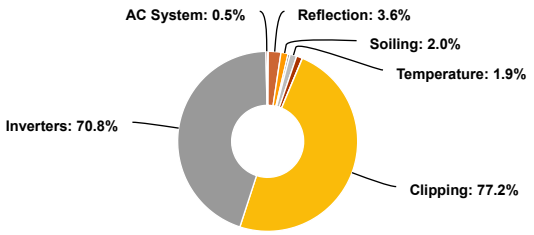
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,284.6	
	Adjusted Global Horizontal Irradiance	1,311.6	2.1%
	POA Irradiance	1,411.9	7.7%
	Shaded Irradiance	1,409.6	-0.2%
	Irradiance after Reflection	1,358.6	-3.6%
	Irradiance after Soiling	1,331.4	-2.0%
	Total Collector Irradiance	**1,331.4**	**0.0%**
Energy (kWh)	Nameplate	113,897.6	
	Output at Irradiance Levels	113,212.4	-0.6%
	Output at Cell Temperature Derate	111,052.4	-1.9%
	Output After Mismatch	109,187.9	-1.7%
	Optimal DC Output	109,152.3	0.0%
	Constrained DC Output	24,937.1	-77.2%
	Inverter Output	7,283.3	-70.8%
	Energy to Grid	**7,246.9**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp	13.3 °C	
	Avg. Operating Cell Temp	20.8 °C	
Simulation Metrics			
	Operating Hours	4659	
	Solved Hours	4659	

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km grid (45.55,-122.65), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Spectral Adjustment Model (CdTe cells only)	First Solar Spectral Adjustment by Dew Point Temperature											
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
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Trackers	Maximum Angle	Backtracking										
	60°	Enabled										
Module Characterizations	Module	Uploaded By	Characterization									
	FS-4110A-2 Sept2014 (First Solar)	HelioScope	Manufacturer, PAN									
Component Characterizations	Device	Uploaded By	Characterization									
	SG1.5KTL (Sungrow)	HelioScope	Default Characterization									

Components

Component	Name	Count
Inverters	SG1.5KTL (Sungrow)	4 (6.00 kW)
Strings	10 AWG (Copper)	140 (14,077.1 ft)
Module	First Solar, FS-4110A-2 Sept2014 (110W)	779 (85.7 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	3-6	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	180°	2.0 ft	1x1	779	779	85.7 kW

Detailed Layout