100.5 kW Roof Mount and Carport Fire Station #5, 123 Dallas St NE, Albuquerque NM

Report

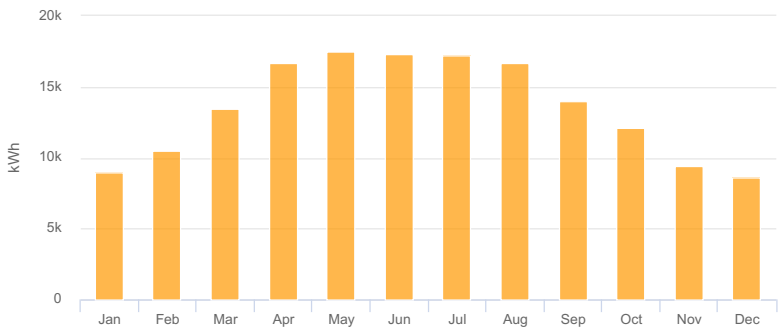
Project Name	Fire Station #5
Project Address	123 Dallas St NE, Albuquerque NM
Prepared By	Zach Johnson zach@sollunasolar.com

System Metrics

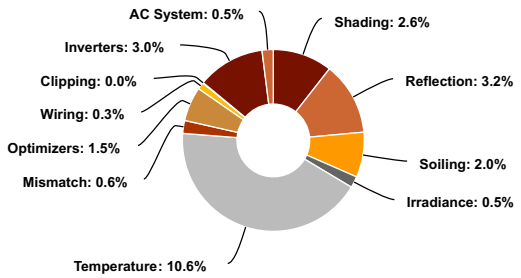
Design	100.5 kW Roof Mount and Carport
Module DC Nameplate	100.5 kW
Inverter AC Nameplate	86.4 kW Load Ratio: 1.16
Annual Production	162.4 MWh
Performance Ratio	77.3%
kWh/kWp	1,615.9
Weather Dataset	TMY, ALBUQUERQUE INTL ARPT [ISIS], NSRDB (tmy3, I)
Simulator Version	559293434c-36a84e2c72-edbe86706d-ee22b44d10

Project Location

Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,980.4	
	POA Irradiance	2,089.3	5.5%
	Shaded Irradiance	2,034.1	-2.6%
	Irradiance after Reflection	1,968.3	-3.2%
	Irradiance after Soiling	1,928.9	-2.0%
	Total Collector Irradiance	**1,929.3**	**0.0%**
Energy (kWh)	Nameplate	193,951.3	
	Output at Irradiance Levels	192,972.2	-0.5%
	Output at Cell Temperature Derate	172,424.1	-10.6%
	Output After Mismatch	171,435.5	-0.6%
	Optimizer Output	168,823.5	-1.5%
	Optimal DC Output	168,303.4	-0.3%
	Constrained DC Output	168,263.6	0.0%
	Inverter Output	163,215.7	-3.0%
	Energy to Grid	**162,399.6**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		17.3 °C
	Avg. Operating Cell Temp		35.4 °C
Simulation Metrics			
	Operating Hours		4566
	Solved Hours		4566

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, ALBUQUERQUE INTL ARPT [ISIS], NSRDB (tmy3, I)
Solar Angle Location	Meteo Lat/Lng
Transposition Model	Perez Model
Temperature Model	Diffusion Model

Temperature Model Parameters

Rack Type	U_{const}	U_{wind}
Fixed Tilt	19	0
Flush Mount	15	0
East-West	29	0
Carport	21	0

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
CS6U-335M (Canadian Solar Inc.)	HelioScope	CS6U-335M-AG_MIX_CSI_EXT_V6_52_1500V_2016Q4.PAN, PAN
CS6U - 335P 1500V (Canadian Solar Inc.)	HelioScope	CS6U-335P_MIX_CSI_EXT_V6_61_1500V_2017Q2.PAN, PAN

Component Characterizations

Device	Uploaded By	Characterization

Components

Component	Name	Count
Inverters	SE43.2K (SolarEdge)	2 (86.4 kW)
Strings	10 AWG (Copper)	18 (2,048.8 ft)
Optimizers	P700 (SolarEdge)	156 (109.2 kW)
Module	Canadian Solar Inc., CS6U - 335P 1500V (335W)	300 (100.5 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	7-17	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	5°	180°	0.7 ft	1x1	48	48	16.1 kW
Field Segment 1 (copy 1)	Fixed Tilt	Landscape (Horizontal)	5°	180°	0.7 ft	1x1	48	39	13.1 kW
Field Segment 1 (copy 2)	Fixed Tilt	Landscape (Horizontal)	5°	180°	0.7 ft	1x1	47	38	12.7 kW
Field Segment 5	Fixed Tilt	Landscape (Horizontal)	15°	180°	1.6 ft	1x1	5	0	0
Field Segment 1 (copy)	Fixed Tilt	Landscape (Horizontal)	5°	180°	0.7 ft	1x1	48	48	16.1 kW
Field Segment 6	Fixed Tilt	Landscape (Horizontal)	5°	180°	0.7 ft	1x1	30	29	9.72 kW
Field Segment 7	Flush Mount	Landscape (Horizontal)	10°	180°	0.0 ft	1x1	98	98	32.8 kW

Detailed Layout