RAS Design 1-5 degree tilt 11" intra row spacing (for construction) Old APD Building (COA#2), 401 Marquette Ave NW, Albuquerque, NM

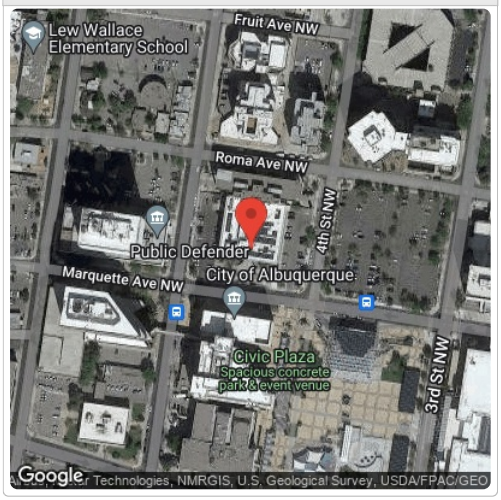
Report

Project Name	Old APD Building (COA#2)
Project Address	401 Marquette Ave NW, Albuquerque, NM
Prepared By	Benjamin Rodefer ben@riogranderenewables.com

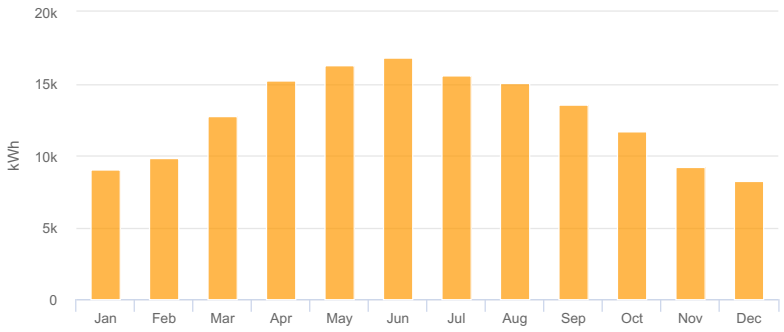
System Metrics

Design	RAS Design 1-5 degree tilt 11" intra row spacing (for construction)
Module DC Nameplate	86.3 kW
Inverter AC Nameplate	72.0 kW Load Ratio: 1.20
Annual Production	153.1 MWh
Performance Ratio	83.9%
kWh/kWp	1,775.2
Weather Dataset	TMY, 10km grid (35.05,-106.65), NREL (prospector)
Simulator Version	9c02b5deb1-388eda1f11-1a6f592b1e-c8d7445e4b

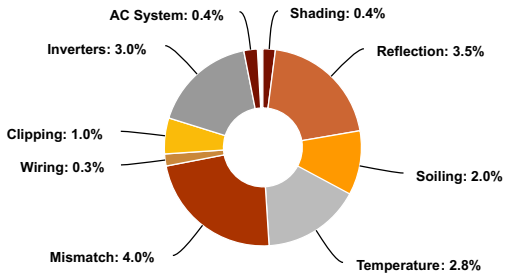
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	2,026.9	
	POA Irradiance	2,115.9	4.4%
	Shaded Irradiance	2,108.3	-0.4%
	Irradiance after Reflection	2,033.5	-3.5%
	Irradiance after Soiling	1,992.8	-2.0%
	Total Collector Irradiance	**1,992.8**	**0.0%**
Energy (kWh)	Nameplate	172,020.1	
	Output at Irradiance Levels	172,284.5	0.2%
	Output at Cell Temperature Derate	167,400.2	-2.8%
	Output After Mismatch	160,663.0	-4.0%
	Optimal DC Output	160,108.1	-0.3%
	Constrained DC Output	158,456.6	-1.0%
	Inverter Output	153,714.8	-3.0%
	Energy to Grid	**153,114.1**	**-0.4%**
Temperature Metrics			
	Avg. Operating Ambient Temp		14.7 °C
	Avg. Operating Cell Temp		24.6 °C
Simulation Metrics			
	Operating Hours		4651
	Solved Hours		4651

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km grid (35.05,-106.65), NREL (prospector)
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)	HelioScope	Spec Sheet Characterization, PAN
SEG-6MA-345WW (Seraphim Energy Group, Inc.)	Rio Grande Solar	SEG-6MA-345WW.PAN, PAN

Component Characterizations

Device	Uploaded By	Characterization

Components

Component	Name	Count
Inverters	PVI 36TL (480V) (Solectria)	2 (72.0 kW)
AC Home Runs	1/0 AWG (Aluminum)	2 (1,022.1 ft)
Strings	10 AWG (Copper)	14 (2,209.8 ft)
Module	Seraphim Energy Group, Inc., SEG-6MA-345WW (345W)	250 (86.3 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	15-19	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	5°	188.926°	0.9 ft	1x1	250	250	86.3 kW
Field Segment 3	Fixed Tilt	Landscape (Horizontal)	0°	188.926°	0.9 ft	1x1			0

Detailed Layout