

## Design 1 Tobacco Valley, Simsbury, CT

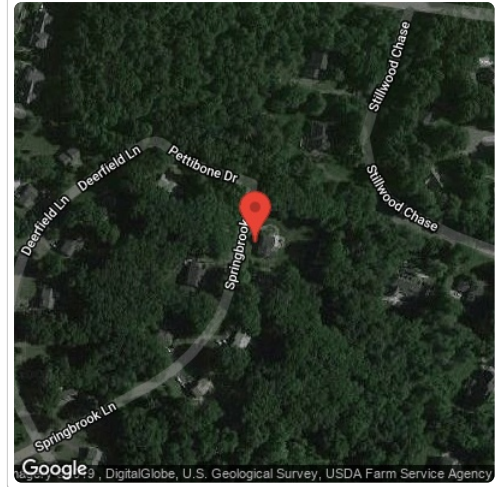
## Report

Project Name	Tobacco Valley
Project Address	Simsbury, CT
Prepared By	John Weaver commercialsolarguy@gmail.com

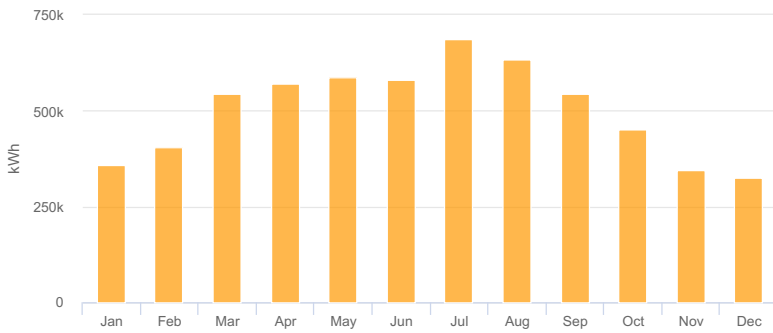
## System Metrics

Design	Design 1
Module DC Nameplate	4.85 MW
Inverter AC Nameplate	2.65 MW Load Ratio: 1.83
Annual Production	6.030 GWh
Performance Ratio	76.0%
kWh/kWp	1,242.2
Weather Dataset	TMY, 10km grid (41.85,-72.85), NREL (prospector)
Simulator Version	adf369866d-556f8d713a-54a50a1bd0-31530f3f2f

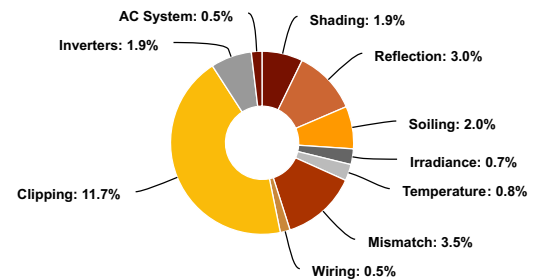
## Project Location



## Monthly Production



## Sources of System Loss



## Annual Production

	Description	Output	% Delta
Irradiance (kWh/m <sup>2</sup> )	Annual Global Horizontal Irradiance	1,423.3	
	POA Irradiance	1,635.2	14.9%
	Shaded Irradiance	1,603.9	-1.9%
	Irradiance after Reflection	1,555.5	-3.0%
	Irradiance after Soiling	1,524.4	-2.0%
	<b>Total Collector Irradiance</b>	<b>1,524.3</b>	<b>0.0%</b>
Energy (kWh)	Nameplate	7,402,612.5	
	Output at Irradiance Levels	7,348,178.1	-0.7%
	Output at Cell Temperature Derate	7,291,423.2	-0.8%
	Output After Mismatch	7,032,743.1	-3.5%
	Optimal DC Output	7,000,428.2	-0.5%
	Constrained DC Output	6,179,515.8	-11.7%
	Inverter Output	6,060,509.4	-1.9%
	<b>Energy to Grid</b>	<b>6,030,206.8</b>	<b>-0.5%</b>
Temperature Metrics			
	Avg. Operating Ambient Temp		11.8 °C
	Avg. Operating Cell Temp		19.3 °C
Simulation Metrics			
	Operating Hours	4689	
	Solved Hours	4689	

## Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km grid (41.85,-72.85), 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								
	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%											
Module Characterizations	Module						Characterization					
	CS3W-400 (1500V) (Canadian Solar)						Spec Sheet Characterization, PAN					
Component Characterizations	Device						Characterization					
	SOFAR 50000TL (Mass Energy)						Spec Sheet					

Components		
Component	Name	Count
Inverters	SOFAR 50000TL (Mass Energy)	53 (2.65 MW)
Strings	10 AWG (Copper)	689 (203,717.0 ft)
Module	Canadian Solar, CS3W-400 (1500V) (400W)	12,136 (4.85 MW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	7-18	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	20°	180°	6.2 ft	2x1	6,068	12,136	4.85 MW

