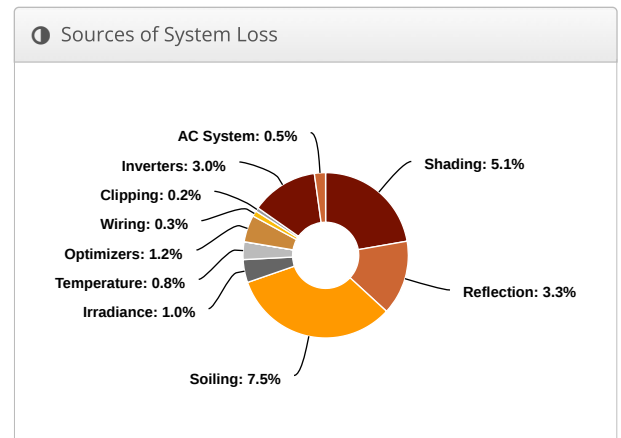
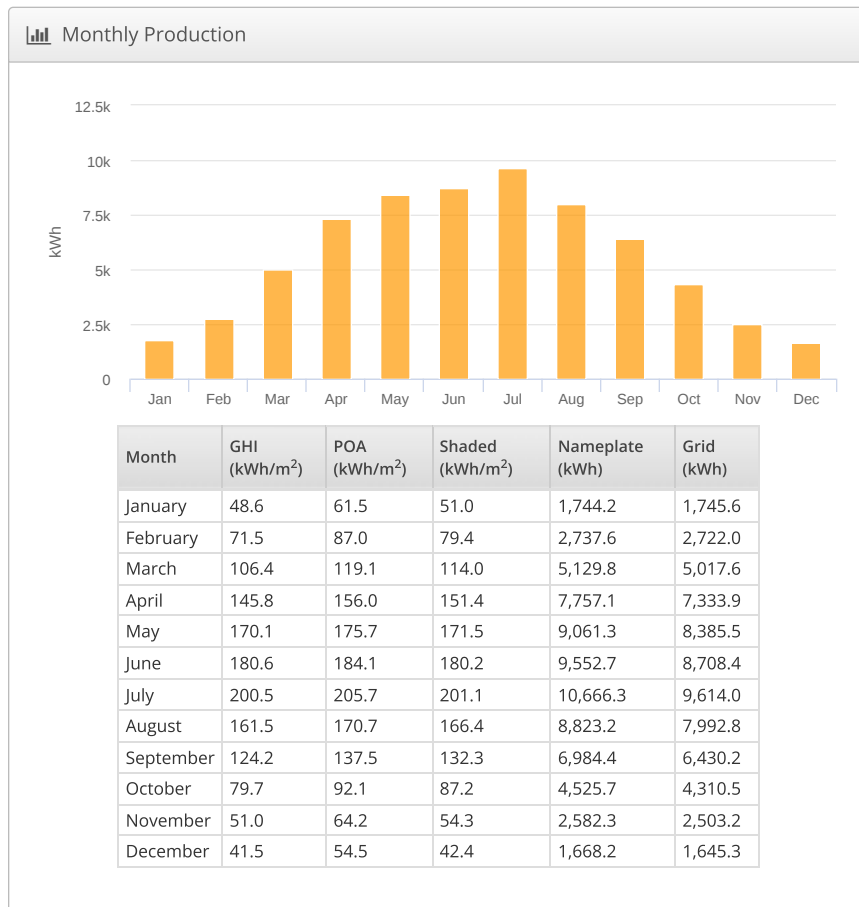
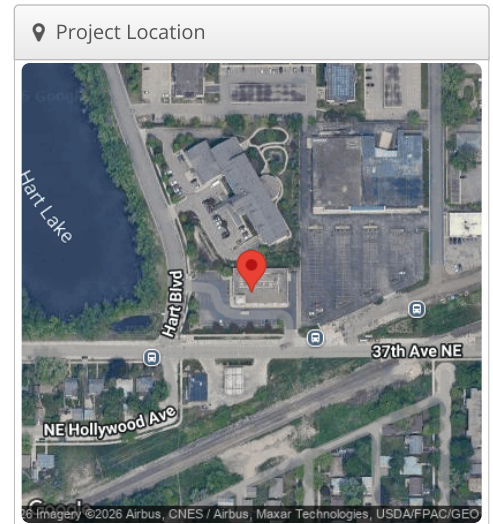


Roof Mount 40kW GOLDI/Silfab R2 City of Columbia Heights - Top Valu Liquor Store, 2015 37th Ave. NE, Columbia Heights, MN 55421

Report	
Project Name	City of Columbia Heights - Top Valu Liquor Store
Project Address	2015 37th Ave. NE, Columbia Heights, MN 55421
Prepared By	Shawn Doolittle shawn@cedarcreekenergy.com

System Metrics	
Design	Roof Mount 40kW GOLDI/Silfab R2
Module DC Nameplate	55.68 kW
Inverter AC Nameplate	50.00 kW Load Ratio: 1.11
Annual Production	66.41 MWh
Performance Ratio	79.1%
kWh/kWp	1,192.7
Weather Dataset	TMY, 10km grid (45.05,-93.25), NREL (prospector)
Simulator Version	823f81a317-553ea487a1-f666c9d906-335c9dbbe9



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,381.4	
	POA Irradiance	1,508.1	9.2%
	Shaded Irradiance	1,431.1	-5.1%
	Irradiance after Reflection	1,383.3	-3.3%
	Irradiance after Soiling	1,279.2	-7.5%
	Total Collector Irradiance	1,279.3	0.0%
Energy (kWh)	Nameplate	71,232.7	
	Output at Irradiance Levels	70,498.8	-1.0%
	Output at Cell Temperature Derate	69,938.6	-0.8%
	Output after Electrical Mismatch	69,938.3	0.0%
	Optimizer Output	69,097.2	-1.2%
	Optimal DC Output	68,922.5	-0.3%
	Constrained DC Output	68,806.9	-0.2%
	Inverter Output	66,742.6	-3.0%
	Energy to Grid	66,408.9	-0.5%
	Temperature Metrics		
	Avg. Operating Ambient Temp	10.4 °C	
	Avg. Operating Cell Temp	16.7 °C	
Simulation Metrics			
	Operating Hours	4675	
	Solved Hours	4675	

☁ Condition Set													
Description		snow loss RM10											
Weather Dataset		TMY, 10km grid (45.05,-93.25), 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	
	35.4	35.3	16.1	5.2	2.2	2	2	2	2	2.9	10.3	25.4	
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 & Component Characterizations	Type	Component									Characterization		
	Module	SIL-580 XM+ (Silfab Solar)									Spec Sheet Characterization, PAN		
	Module	XLX03M72T 580WT (Goldi America)									Spec Sheet Characterization, PAN		
	Buck Boost Optimizer	C651U (for NA use only) (SolarEdge)									Mfg Spec Sheet		
	Inverter	SE50KUS (SE-TRI-US001BNS4) - Domestic Content (SolarEdge)											

Components		
Component	Name	Count
Inverters	SE50KUS (SE-TRI-US00IBNS4) - Domestic Content (SolarEdge)	1 (50.00 kW)
Strings	10 AWG (Copper)	6 (491.0 ft)
Optimizers	C651U (for NA use only) (SolarEdge)	96 (62.40 kW)
Module	Goldi America, XLX03M72T 580WT (580W)	80 (46.40 kW)
Module	Silfab Solar, SIL-580 XM+ (580W)	16 (9.28 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	16-16	Along Racking

Field Segments										
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power	
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	1.1 ft	1x1	21	21	12.18 kW	
Field Segment 2	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	1.1 ft	1x1	59	59	34.22 kW	
Field Segment 3	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	1.1 ft	1x1	16	16	9.28 kW	

Detailed Layout2

