

May 14, 2025

Dan Porta
City Manager
City of Cartersville
1 North Erwin Street
Cartersville, GA 30120
dporta@cityofcartersville.org

**RE: Add-Service Fee Proposal for Addition of Solar Panels
Cartersville Recreation Center / Cartersville, Georgia**

Dan:

We are pleased to submit this proposal for an additional service to provide architectural, structural and electrical engineering services for the implementation of a solar array on the roof of the new Cartersville Recreation Center. Our understanding is that Qcells will donate a solar panel system to the City to be installed on the Gym roof. CROFT will provide the scope as noted below:

SCOPE OF ADD-SERVICE

- Architectural scope includes:
 - Coordination of solar panel layout across roof.
 - Update to roofing design to accommodate addition of racking.
 - Coordination of solar panel racking system with Qcells' racking designer.
 - Includes additional Construction Administration (CA) for racking system roof attachment submittal.
- Structural scope includes:
 - Analyze roof structure for additional loads of solar panels and racking systems.
 - Revise design of roof trusses as required by analysis.
- Electrical scope includes:
 - General coordination with Approved Integrator installation of Qcells' equipment.
 - Final solar equipment coordination and connections to Main Distribution Board.
 - Includes additional CA for final inspection.

DESIGN ASSUMPTIONS AND EXCLUSIONS

- Solar equipment design based on the attached document received from Qcells.
- Approved Integrator to provide full design, installation and connection of solar equipment system.
- Design of solar panel racking system to be provided by QCells.
- Battery storage system is not a part of this proposal.

DELIVERABLES & SCHEDULE

Deliverables will be provided electronically in PDF file format for your use.

- Final roof solar panel layout = 1 week after receipt of notice to proceed
- Racking design by Qcells = as determined by Qcells' schedule

- Begins after Qcells' receipt of the final solar panel layout.
- Submit drawings to R+Y = three weeks after CROFT's receipt of final racking design from Qcells.

PROFESSIONAL FEES

Professional fees for the project scope as outlined above will be as follows:

- Construction/Bid Drawings.....\$ 41,600
- Lightning Protection Design (if required by Qcells).....\$ 4,300

PAYMENT TERMS AND CONDITIONS

Billing will be sent upon completion of this additional service. Invoices are due upon receipt.

Dan, thanks again for another opportunity to provide services for the City of Cartersville! Should you have any questions regarding this proposal, please do not hesitate to give me a call.

Sincerely,

CROFT & Associates



Michael Gunn, RA

APPROVAL

Accepted by:
Honorable Matt Santini
Mayor
Cartersville, Georgia

Signature

Date

APPROVAL

Accepted by:
Julia Drake
City Clerk
Cartersville, Georgia

Signature

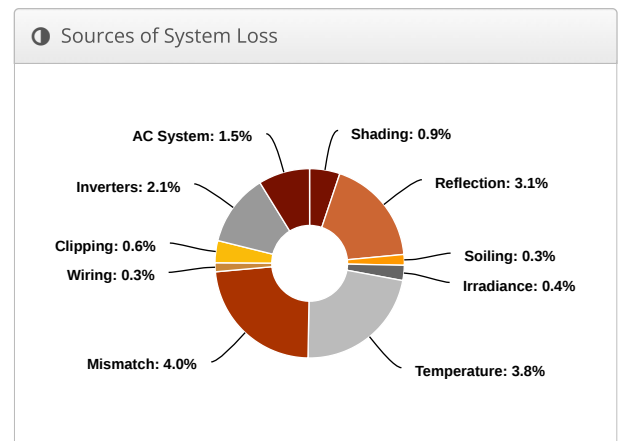
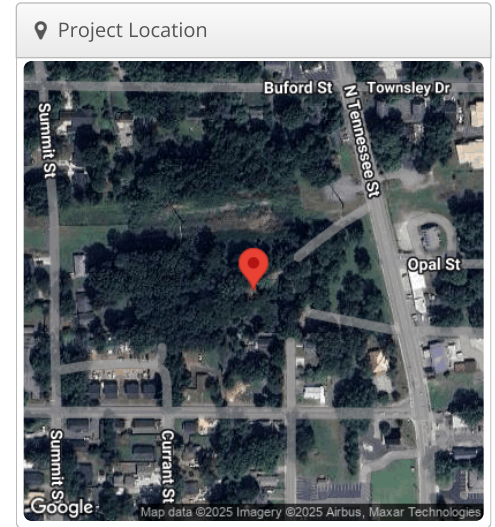
Date

(04.22) MR - Cartersville City Rooftop - 400W - Covering Roof (Zone 2 only)

Cartersville City Building, 640 NORTH TENNESSEE ST. CARTERSVILLE, GA 30120

Report	
Project Name	Cartersville City Building
Project Address	640 NORTH TENNESSEE ST. CARTERSVILLE, GA 30120
Prepared By	Maya Rajagopalan maitreyi.r@qcells.com

System Metrics	
Design	(04.22) MR - Cartersville City Rooftop - 400W - Covering Roof (Zone 2 only)
Module DC Nameplate	79.6 kW
Inverter AC Nameplate	62.5 kW Load Ratio: 1.27
Annual Production	117.0 MWh
Performance Ratio	84.1%
kWh/kWp	1,470.3
Weather Dataset	TMY, Cartersville City Building - Set 1, null (custom)
Simulator Version	be790653d8-700b3d13fb-f2c8de9830-87c1011abb



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,646.4	
	POA Irradiance	1,748.5	6.2%
	Shaded Irradiance	1,733.0	-0.9%
	Irradiance after Reflection	1,678.9	-3.1%
	Irradiance after Soiling	1,673.6	-0.3%
	Total Collector Irradiance	1,673.7	0.0%
Energy (kWh)	Nameplate	133,184.2	
	Output at Irradiance Levels	132,594.6	-0.4%
	Output at Cell Temperature Derate	127,540.1	-3.8%
	Output After Mismatch	122,474.5	-4.0%
	Optimal DC Output	122,154.8	-0.3%
	Constrained DC Output	121,369.8	-0.6%
	Inverter Output	118,818.3	-2.1%
	Energy to Grid	117,036.0	-1.5%
Temperature Metrics			
	Avg. Operating Ambient Temp	18.3 °C	
	Avg. Operating Cell Temp	27.0 °C	
Simulation Metrics			
	Operating Hours	4748	
	Solved Hours	4748	

☁ Condition Set												
Description	SA Weather Data & Soiling Data (Set 1) - 10deg tilt Rooftop 0% bifacial gain (03.20)											
Weather Dataset	TMY, Cartersville City Building - Set 1, null (custom)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Hay Model											
Temperature Model	Diffusion Model											
Temperature Model Parameters	Rack Type					U _{const}	U _{wind}					
	Fixed Tilt					29	0					
	Flush Mount					15	0					
	East-West					29	0					
	Carport					29	0					
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	0.9	1.1	0.4	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.4
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	1.50%											
Trackers	Maximum Angle						Backtracking					
	60°						Enabled					
Module & Component Characterizations	Type	Component									Characterization	
	Module	Q.PEAK DUO BLK ML-G10+ 400 (Hanwha Q Cells)									Spec Sheet Characterization, PAN	
	Inverter	Sunny Tripower_Core1 33-US-41 (SMA)									Default Characterization	
	Inverter	Sunny Tripower_Core1 50-US-41 (SMA)									Default Characterization	
	Inverter	Sunny Tripower_Core1 62-US-41 (SMA)									Default Characterization	

📦 Components		
Component	Name	Count
Inverters	Sunny Tripower_Core1 62-US-41 (SMA)	1 (62.5 kW)
Strings	10 AWG (Copper)	11 (672.2 ft)
Module	Hanwha Q Cells, Q.PEAK DUO BLK ML-G10+ 400 (400W)	199 (79.6 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-20	Along Racking
Wiring Zone 2	-	5-20	Along Racking
Wiring Zone 3	-	5-20	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°	1.6 ft	1x1	199	199	79.6 kW
Field Segment 2	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	1.6 ft	1x1			0
Field Segment 3	Fixed Tilt	Landscape (Horizontal)	Module: 10°	Module: 180°	1.6 ft	1x1			0

Detailed Layout2

