



QUOTATION





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Dear Conrad,

Thank you for choosing SixD Consulting to design and quote your solar project.

We did our design with the following data:

- Grid-Tie only (Savings) backup battery system to be installed in Phase 2
- Daily production of 100 kWh
- SMA Inverters
- Q Cells PV Modules
- Roof Mount

We calculated the total project value at R 172 000 excl VAT. At your current tariff of R2.41 per kWh, your ROI will be +-3 years.

There is an option of extending the SMA 10 Years warranty to 20 years at an additional cost.

See attached detailed design and simulated production, as well as our detailed costing.

We would be able to start this project 14 days after the approval of the quotation.

We hope you find everything in order, please contact us if you need any additional information.

Regards,

SixD Renewables

Roof-Top Design

VT Holdings, 94 Bekker Road, m

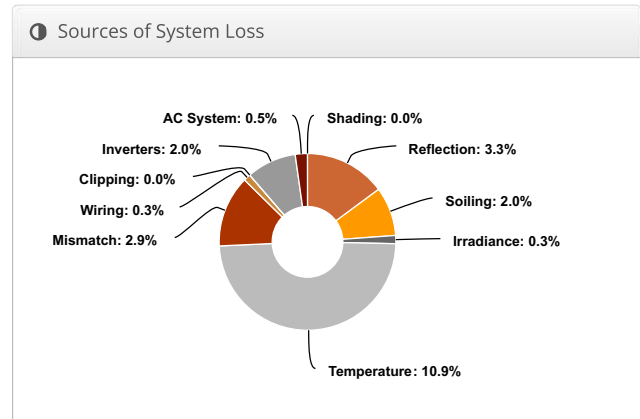
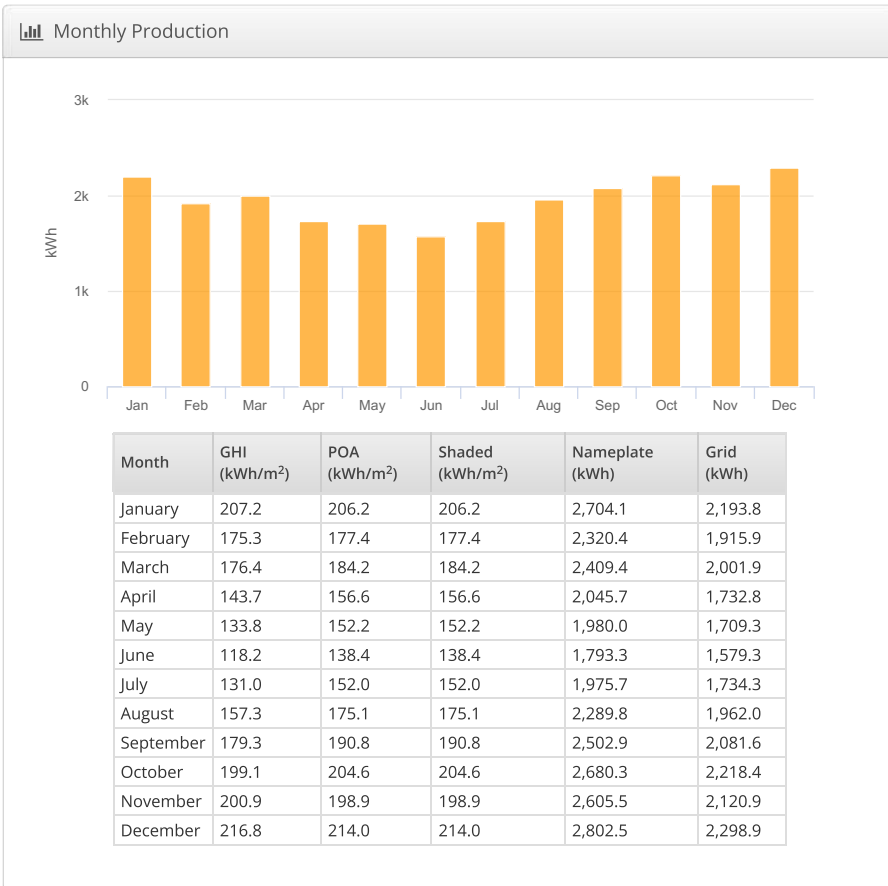
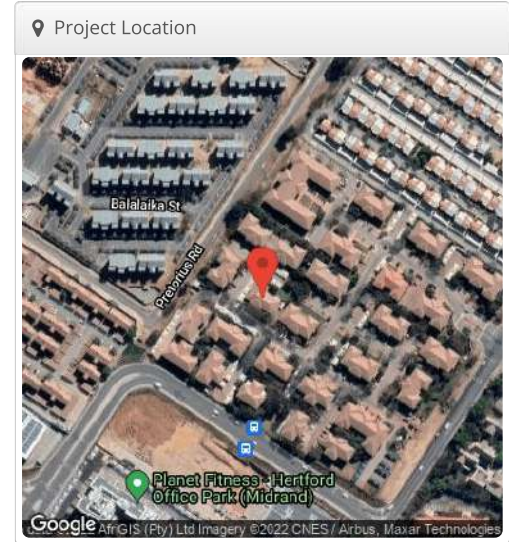
Report

Project Name	VT Holdings
Project Address	94 Bekker Road, m
Prepared By	Bertus Janse van Rensburg info@sixd.co.za



System Metrics

Design	Roof-Top Design
Module DC Nameplate	13.8 kW
Inverter AC Nameplate	24.1 kW Load Ratio: 0.57
Annual Production	23.55 MWh
Performance Ratio	79.4%
kWh/kWp	1,707.1
Weather Dataset	TMY, 10km Grid, meteonorm (meteonorm)
Simulator Version	414c5bc716-617639f4f4-049deabd58-7753ff5f92



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	2,039.0	
	POA Irradiance	2,150.3	5.5%
	Shaded Irradiance	2,150.3	0.0%
	Irradiance after Reflection	2,078.9	-3.3%
	Irradiance after Soiling	2,037.3	-2.0%
	Total Collector Irradiance	2,037.3	0.0%
Energy (kWh)	Nameplate	28,109.6	
	Output at Irradiance Levels	28,016.1	-0.3%
	Output at Cell Temperature Derate	24,957.3	-10.9%
	Output After Mismatch	24,227.1	-2.9%
	Optimal DC Output	24,157.9	-0.3%
	Constrained DC Output	24,157.9	0.0%
	Inverter Output	23,667.3	-2.0%
	Energy to Grid	23,549.0	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp		19.3 °C
	Avg. Operating Cell Temp		41.8 °C
Simulation Metrics			
	Operating Hours		4595
	Solved Hours		4595

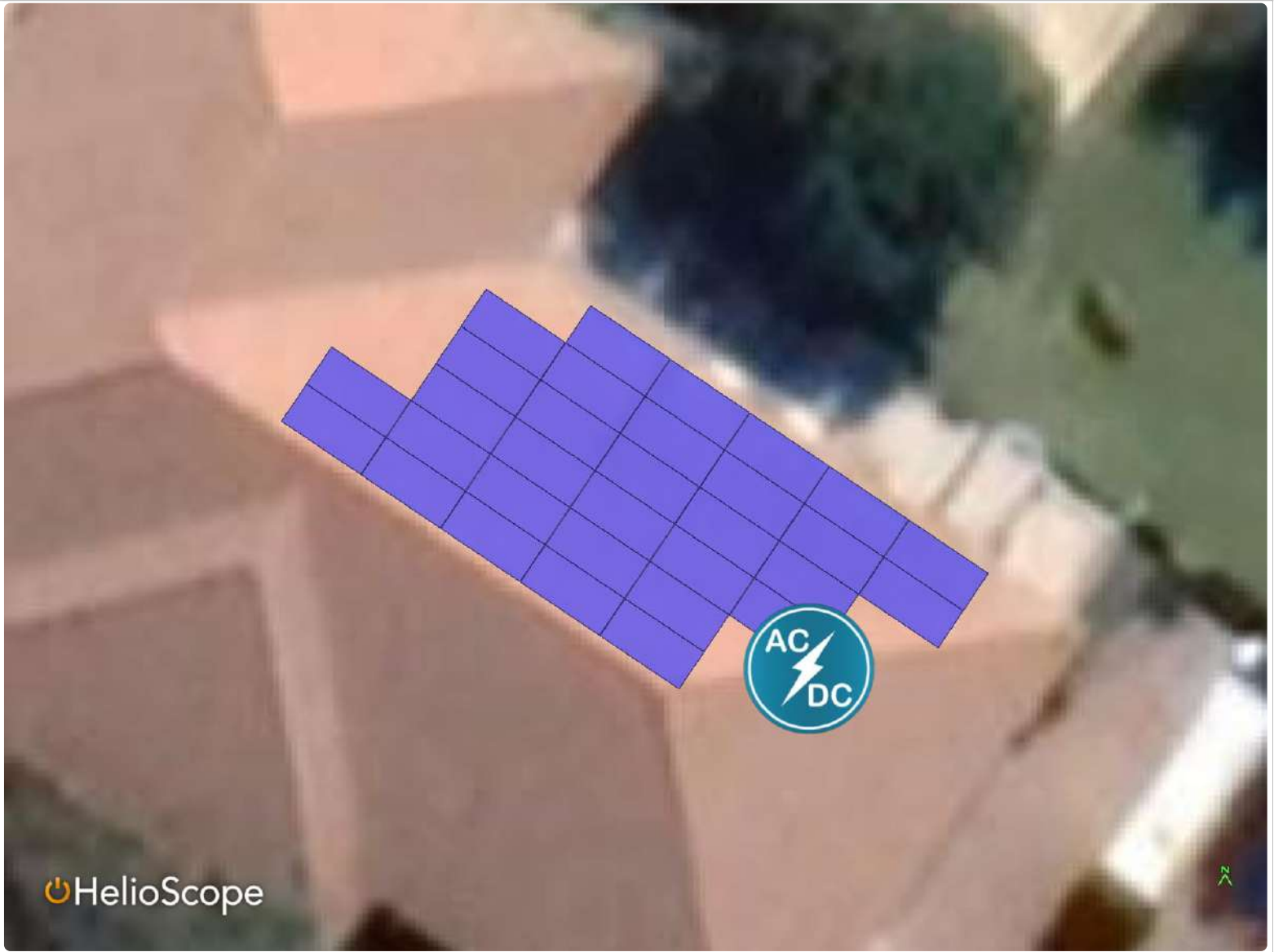
☁ Condition Set													
Description		Condition Set 1											
Weather Dataset		TMY, 10km Grid, meteonorm (meteonorm)											
Solar Angle Location		Meteo Lat/Lng											
Transposition Model		Perez Model											
Temperature Model		Sandia Model											
Temperature Model Parameters	Rack 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	Q,PEAK DUO XL-G9.2 445 (Hanwha Q Cells)					Uploaded By	Folsom Labs					
	Characterization	Spec Sheet Characterization, PAN											
Component Characterizations	Device	Sunny Tripower 24000TL-US (SMA)					Uploaded By	Folsom Labs					
	Characterization	Modified CEC											

📦 Components		
Component	Name	Count
Inverters	Sunny Tripower 24000TL-US (SMA)	1 (24.1 kW)
Strings	10 AWG (Copper)	2 (55.2 ft)
Module	Hanwha Q Cells, Q,PEAK DUO XL-G9.2 445 (445W)	31 (13.8 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	4-17	Along Racking

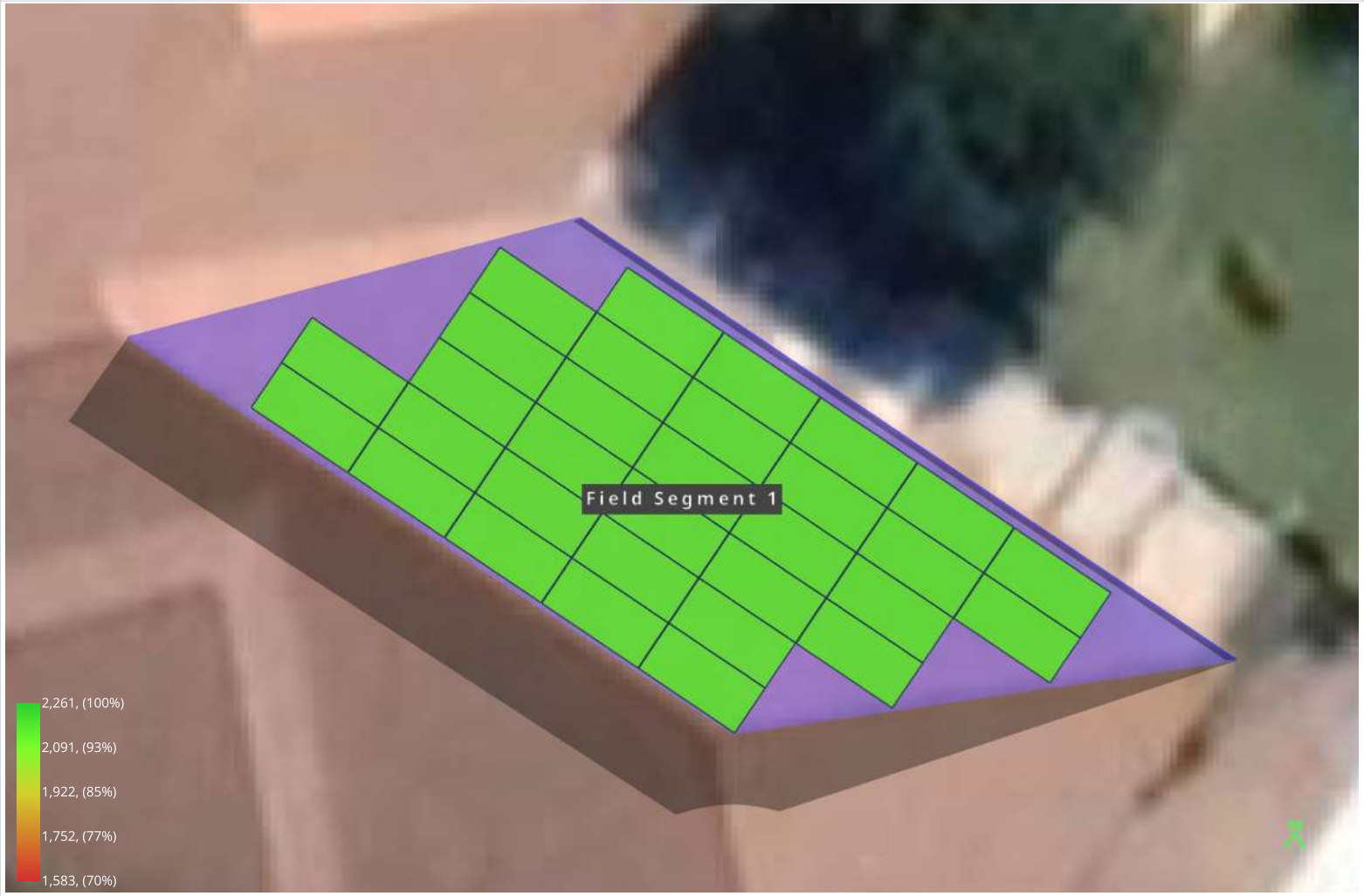
🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Flush Mount	Landscape (Horizontal)	10°	33.954830063404984°	0.0 ft	1x1	31	31	13.8 kW

Detailed Layout



Roof-Top Design VT Holdings, 94 Bekker Road, m

Shading Heatmap



Shading by Field Segment

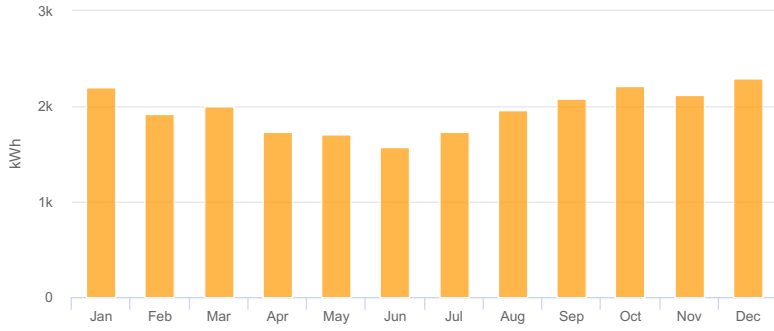
Description	Tilt	Azimuth	Modules	Nameplate	Shaded Irradiance	AC Energy	TOF ²	Solar Access	Avg TSRF ²
Field Segment 1	10.0°	34.0°	31	13.8 kWp	2,150.3kWh/m ²	23.5 MWh ¹	95.1%	100.0%	95.1%
Totals, weighted by kWp			31	13.8 kWp	2,150.3kWh/m²	23.5 MWh	95.1%	100.0%	95.1%

¹ approximate, varies based on inverter performance
² based on location Optimal POA Irradiance of 2,260.8kWh/m² at 32.9° tilt and 5.0° azimuth

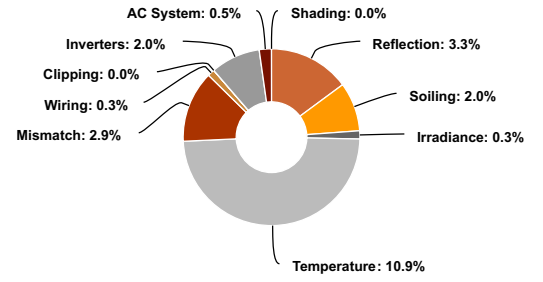
Solar Access by Month

Description	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Field Segment 1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Solar Access, weighted by kWp	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
AC Power (kWh)	2,193.8	1,915.9	2,001.9	1,732.8	1,709.3	1,579.3	1,734.3	1,962.0	2,081.6	2,218.4	2,120.9	2,298.9

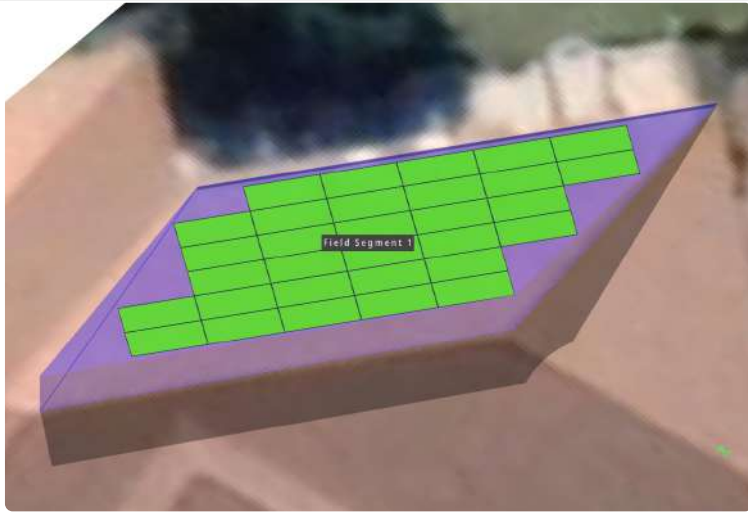
Monthly Production



Sources of System Loss



Southwestern Angle



Southeastern Angle

