Zone 3 v2 722191 | Groningen ZP-CAES Systeem, 53.24304069572769, 6.687871594668537

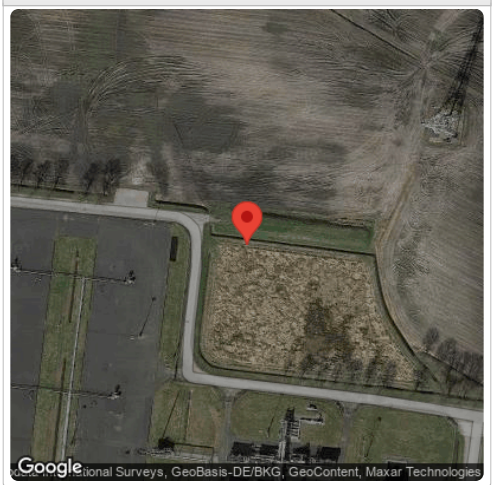
Report

Project Name	722191 | Groningen ZP-CAES Systeem
Project Address	53.24304069572769, 6.687871594668537
Prepared By	Pondera Consult w.pustjens@ponderaconsult.com

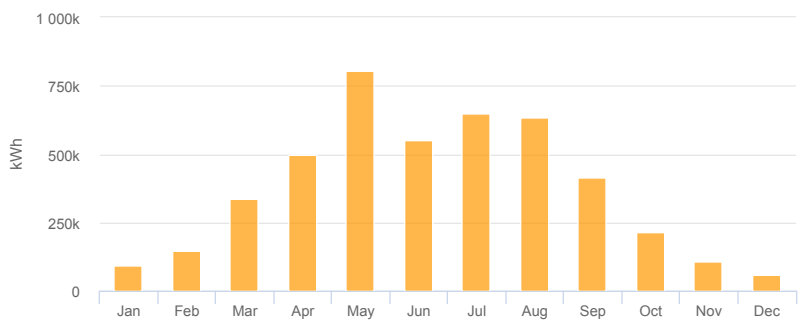
System Metrics

Design	Zone 3 v2
Module DC Nameplate	4.93 MW
Inverter AC Nameplate	3.33 MW Load Ratio: 1.48
Annual Production	4.505 GWh
Performance Ratio	82.2%
kWh/kWp	913.1
Weather Dataset	Groningen ZP (TMY), Groningen ZP, ECMWF/ERA (custom)
Simulator Version	9d53a3b848-c6f1de3103-cbfc6db688-f77d5107a9

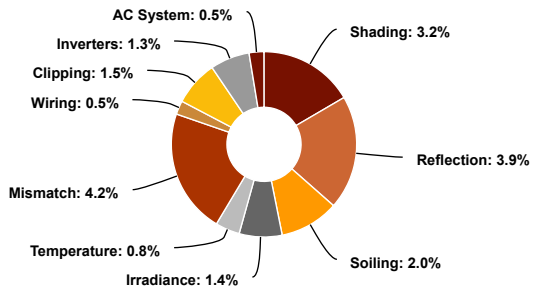
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,014.9	
	POA Irradiance	1,110.9	9.5%
	Shaded Irradiance	1,075.3	-3.2%
	Irradiance after Reflection	1,033.9	-3.9%
	Irradiance after Soiling	1,013.2	-2.0%
	Total Collector Irradiance	**1,013.1**	**0.0%**
Energy (kWh)	Nameplate	4,999,158.6	
	Output at Irradiance Levels	4,926,750.3	-1.4%
	Output at Cell Temperature Derate	4,886,301.3	-0.8%
	Output After Mismatch	4,680,946.9	-4.2%
	Optimal DC Output	4,659,371.3	-0.5%
	Constrained DC Output	4,588,667.1	-1.5%
	Inverter Output	4,527,629.3	-1.3%
	Energy to Grid	**4,504,991.0**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp	13.2 °C	
	Avg. Operating Cell Temp	19.0 °C	
Simulation Metrics			
	Operating Hours	4171	
	Solved Hours	4171	

Condition Set

Description	Groningen PVGIS-SARAH2 (TMY)			
Weather Dataset	Groningen ZP (TMY), Groningen ZP, ECMWF/ERA (custom)			
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	Uploaded By	Characterization
	JAM72S30-550/MR (1500V) (JA Solar)	HelioScope	Spec Sheet Characterization, PAN
Component Characterizations	Device	Uploaded By	Characterization
	SUN2000-185KTL-H1 (@40C) (2021) (Huawei)	HelioScope	Spec Sheet

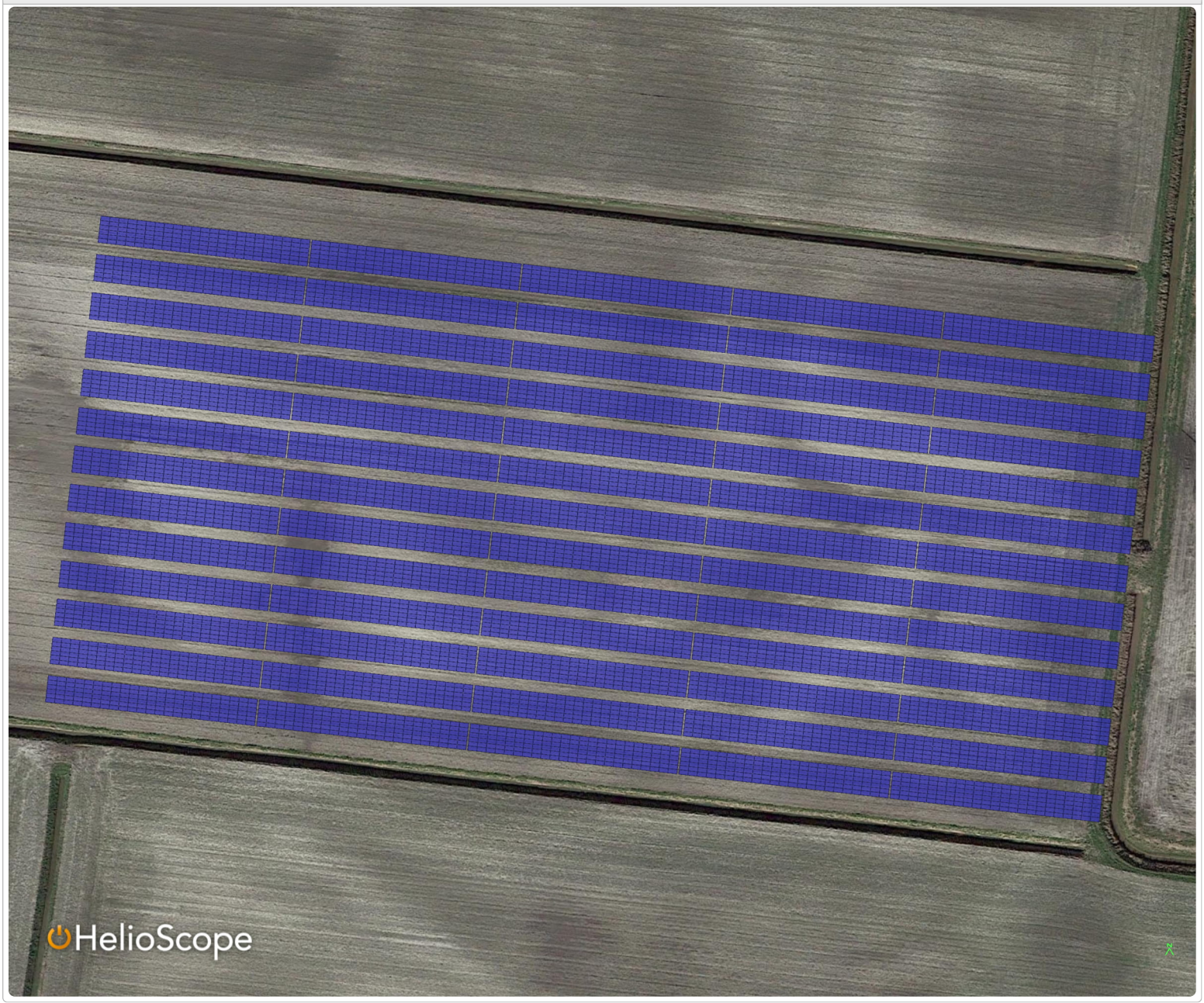
Components

Component	Name	Count
Inverters	SUN2000-185KTL-H1 (@40C) (2021) (Huawei)	19 (3.33 MW)
Strings	10 AWG (Copper)	344 (48,128.6 m)
Module	JA Solar, JAM72S30-550/MR (1500V) (550W)	8,970 (4.93 MW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	13-27	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Zone 3	Fixed Tilt	Landscape (Horizontal)	15°	186.5°	3.0 m	6x23	65	8,970	4.93 MW

Detailed Layout