Initial Design CP V1

Bystronic Manufacturing LLC, 2200 W Central Rd, Hoffman Estates, IL 60192

Report

Project Name	Bystronic Manufacturing LLC
Project Address	2200 W Central Rd, Hoffman Estates, IL 60192
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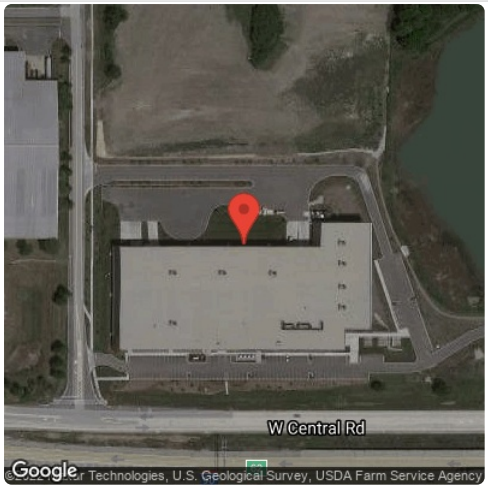
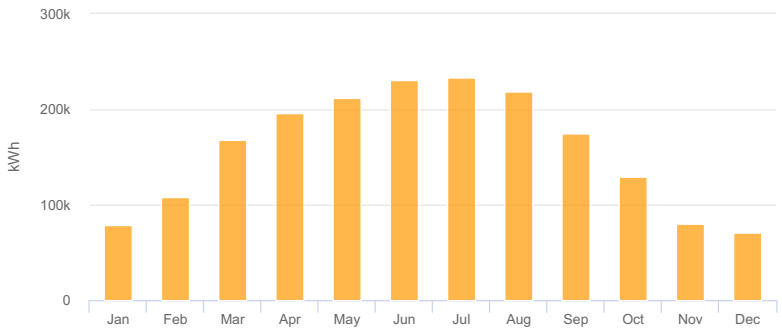
System Metrics

Design	Initial Design CP V1
Module DC Nameplate	1.44 MW
Inverter AC Nameplate	1.19 MW Load Ratio: 1.21
Annual Production	1.900 GWh
Performance Ratio	85.4%
kWh/kWp	1,318.5
Weather Dataset	TMY, 10km grid (42.05,-88.15), NREL (prospector)
Simulator Version	078eaa1460-a00793b259-de204fe8df-2192dfaeb7

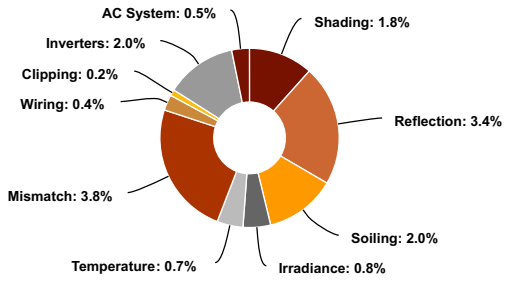
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,429.0	
	POA Irradiance	1,544.8	8.1%
	Shaded Irradiance	1,516.7	-1.8%
	Irradiance after Reflection	1,465.1	-3.4%
	Irradiance after Soiling	1,435.8	-2.0%
	Total Collector Irradiance	**1,435.8**	**0.0%**
Energy (kWh)	Nameplate	2,068,467.3	
	Output at Irradiance Levels	2,052,474.2	-0.8%
	Output at Cell Temperature Derate	2,037,423.4	-0.7%
	Output After Mismatch	1,960,466.8	-3.8%
	Optimal DC Output	1,951,789.6	-0.4%
	Constrained DC Output	1,948,477.9	-0.2%
	Inverter Output	1,909,456.1	-2.0%
	Energy to Grid	**1,899,908.9**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		11.6 °C
	Avg. Operating Cell Temp		18.6 °C
Simulation Metrics			
	Operating Hours		4697
	Solved Hours		4697

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km grid (42.05,-88.15), 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
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
Q.Peak DUO XL-G10.2 480 (Hanwha Q Cells)	Folsom Labs	Spec Sheet Characterization, PAN

Component Characterizations

Device	Uploaded By	Characterization

Components

Component	Name	Count
Inverters	Sunny Tripower CORE1 62-US (SMA)	19 (1.19 MW)
Strings	10 AWG (Copper)	209 (58,975.4 ft)
Module	Hanwha Q Cells, Q.Peak DUO XL-G10.2 480 (480W)	3,002 (1.44 MW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	13-16	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	179.90814°	1.2 ft	1x1	3,002	3,002	1.44 MW

Detailed Layout