

Detailed Design Rev A

MMU Naylor Halls, Manchester M15 6GR, UK

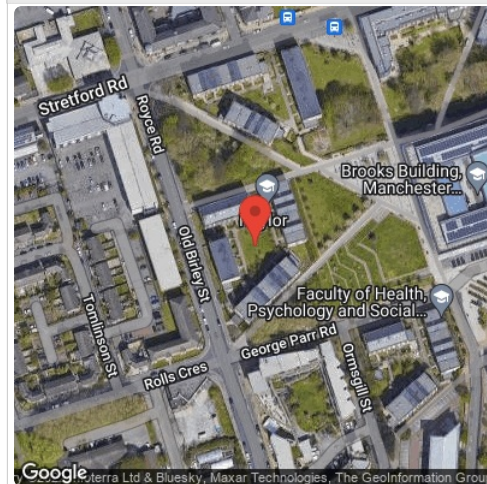
Report

Project Name	MMU Naylor Halls
Project Address	Manchester M15 6GR, UK
Prepared By	Nep Shaek nep.shaek@cor-energy.co.uk

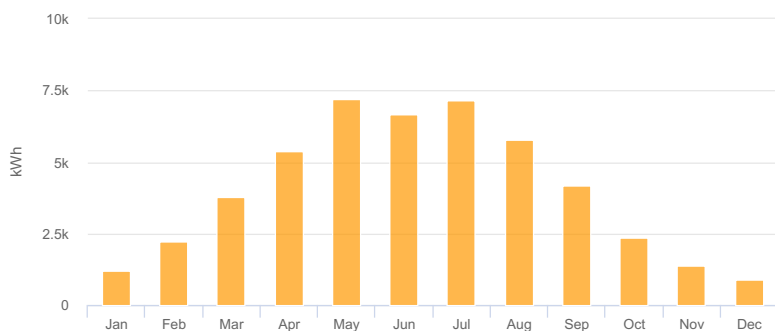
System Metrics

Design	Detailed Design Rev A
Module DC Nameplate	58.5 kW
Inverter AC Nameplate	50.0 kW Load Ratio: 1.17
Annual Production	48.12 MWh
Performance Ratio	78.3%
kWh/kWp	822.6
Weather Dataset	TMY, 10km Grid, meteonorm/nasa low resolution (meteonorm)
Simulator Version	29eddcad3a-7a4dce91a7-91691775d4-b09c1fb2c2

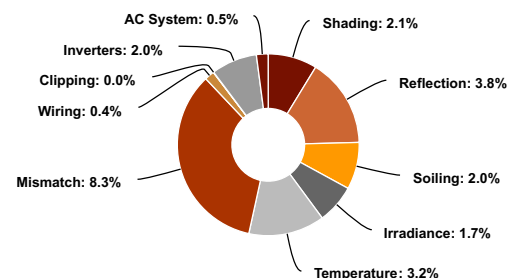
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	986.7	
	POA Irradiance	1,051.1	6.5%
	Shaded Irradiance	1,029.2	-2.1%
	Irradiance after Reflection	990.2	-3.8%
	Irradiance after Soiling	970.4	-2.0%
	Total Collector Irradiance	969.8	-0.1%
Energy (kWh)	Nameplate	56,741.9	
	Output at Irradiance Levels	55,800.5	-1.7%
	Output at Cell Temperature Derate	53,993.4	-3.2%
	Output After Mismatch	49,538.5	-8.3%
	Optimal DC Output	49,332.4	-0.4%
	Constrained DC Output	49,325.5	0.0%
	Inverter Output	48,362.7	-2.0%
	Energy to Grid	48,120.9	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp		12.3 °C
	Avg. Operating Cell Temp		21.4 °C
Simulation Metrics			
	Operating Hours	4584	
	Solved Hours	4584	

☁ Condition Set													
Description	Condition Set 1												
Weather Dataset	TMY, 10km Grid, meteonorm/nasa low resolution (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					Uploaded By			Characterization				
	TSM-PD14 320 (May16) (Trina Solar)					HelioScope			Spec Sheet Characterization, PAN				
	LR4-60HIH-375M (Longi)					HelioScope			Spec Sheet Characterization, PAN				
Component Characterizations	Device		Uploaded By					Characterization					

📦 Components		
Component	Name	Count
Inverters	S5-GR3P10K (400V) (Solis)	1 (10.00 kW)
Inverters	S5-GR3P20K (400V) (Solis)	2 (40.0 kW)
Strings	4 mm2 (Copper)	8 (375.0 m)
Module	Longi, LR4-60HIH-375M (375W)	156 (58.5 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	5-24	Along Racking
Wiring Zone 2	-	5-24	Along Racking
Wiring Zone 3	-	5-24	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Flush Mount	Portrait (Vertical)	30°	162.05475°	0.0 m	1x1	34	34	12.8 kW
Field Segment 2	Flush Mount	Landscape (Horizontal)	30°	342.08356°	0.6 m	1x1			0
Field Segment 3	Flush Mount	Portrait (Vertical)	30°	252.14166°	0.0 m	1x1	34	34	12.8 kW
Field Segment 4	Flush Mount	Portrait (Vertical)	30°	72.05864°	0.0 m	1x1	27	27	10.1 kW
Field Segment 5	Fixed Tilt	Landscape (Horizontal)	30°	162.16498°	0.2 m	1x1			0
Field Segment 6	Flush Mount	Portrait (Vertical)	35°	162.16498°	0.2 m	1x1			0
Field Segment 7	Flush Mount	Portrait (Vertical)	35°	342.12494°	0.2 m	1x1			0
Field Segment 8	Flush Mount	Portrait (Vertical)	35°	162.42874°	0.2 m	1x1			0
Field Segment 9	Flush Mount	Portrait (Vertical)	35°	342.63635°	0.2 m	1x1			0
Field Segment 10	Flush Mount	Portrait (Vertical)	35°	161.75008°	0.2 m	1x1			0
Field Segment 11	Flush Mount	Portrait (Vertical)	35°	341.56506°	0.2 m	1x1			0
Field Segment 12	Fixed Tilt	Landscape (Horizontal)	10°	224.11859°	0.5 m	1x1	43	43	16.1 kW
Field Segment 13	Flush Mount	Portrait (Vertical)	35°	225.53546°	0.2 m	1x1	6	6	2.25 kW
Field Segment 14	Flush Mount	Portrait (Vertical)	35°	45.42821°	0.2 m	1x1			0
Field Segment 15	Flush Mount	Portrait (Vertical)	35°	225.13806°	0.2 m	1x1	6	6	2.25 kW
Field Segment 16	Flush Mount	Portrait (Vertical)	35°	45.416183°	0.2 m	1x1			0
Field Segment 17	Flush Mount	Portrait (Vertical)	35°	224.87067°	0.2 m	1x1	6	6	2.25 kW
Field Segment 18	Flush Mount	Portrait (Vertical)	35°	44.591724°	0.2 m	1x1			0

Detailed Layout

