

Detailed Design Rev A MMU - Dale Halls, Manchester M15 6GR, UK

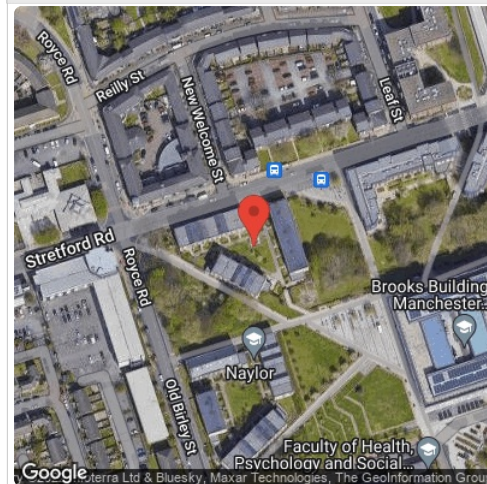
Report

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

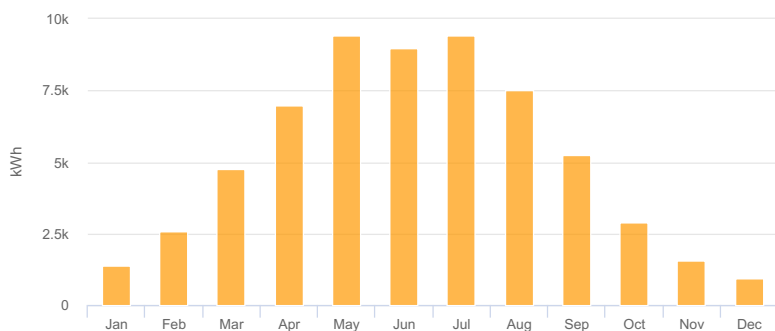
System Metrics

Design	Detailed Design Rev A
Module DC Nameplate	83.3 kW
Inverter AC Nameplate	71.0 kW Load Ratio: 1.17
Annual Production	61.73 MWh
Performance Ratio	76.1%
kWh/kWp	741.5
Weather Dataset	TMY, 10km Grid, meteonorm/nasa low resolution (meteonorm)
Simulator Version	29eddcad3a-7a4dce91a7-91691775d4-b09c1fb2c2

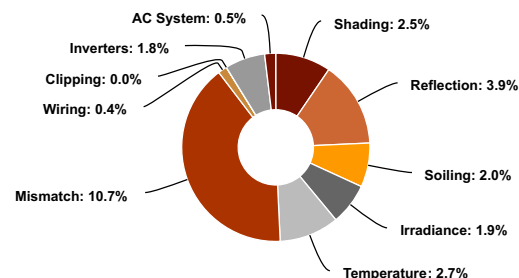
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	986.7	
	POA Irradiance	973.7	-1.3%
	Shaded Irradiance	949.2	-2.5%
	Irradiance after Reflection	912.3	-3.9%
	Irradiance after Soiling	894.0	-2.0%
	Total Collector Irradiance	893.7	0.0%
Energy (kWh)	Nameplate	74,408.1	
	Output at Irradiance Levels	73,002.1	-1.9%
	Output at Cell Temperature Derate	71,024.5	-2.7%
	Output After Mismatch	63,449.6	-10.7%
	Optimal DC Output	63,191.0	-0.4%
	Constrained DC Output	63,190.4	0.0%
	Inverter Output	62,036.7	-1.8%
	Energy to Grid	61,726.5	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp		12.3 °C
	Avg. Operating Cell Temp		20.6 °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								
	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-GC25K (400V) (Solis)	1 (25.0 kW)
Inverters	S5-GC36K (400V) (Solis)	1 (36.0 kW)
Strings	4 mm2 (Copper)	11 (622.0 m)
Module	Longi, LR4-60HIH-375M (375W)	222 (83.3 kW)

Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	6-24	Along Racking
Wiring Zone 2	-	5-24	Along Racking
Wiring Zone 3	-	6-24	Along Racking

Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	162.01978°	0.5 m	1x1	50	40	15.0 kW
Field Segment 2	Fixed Tilt	Landscape (Horizontal)	10°	208.66818°	0.5 m	1x1	25	20	7.50 kW
Field Segment 3	Flush Mount	Portrait (Vertical)	35°	252.04951°	0.0 m	1x1	71	50	18.8 kW
Field Segment 5	Flush Mount	Portrait (Vertical)	35°	297.66675°	0.0 m	1x1	0	0	0
Field Segment 6	Flush Mount	Portrait (Vertical)	35°	118.651825°	0.0 m	1x1	8	6	2.25 kW
Field Segment 7	Flush Mount	Portrait (Vertical)	35°	297.41803°	0.0 m	1x1	0	0	0
Field Segment 8	Flush Mount	Portrait (Vertical)	35°	118.12857°	0.0 m	1x1	8	6	2.25 kW
Field Segment 9	Flush Mount	Portrait (Vertical)	35°	252.97948°	0.0 m	1x1	8	6	2.25 kW
Field Segment 10	Flush Mount	Portrait (Vertical)	35°	72.1693°	0.0 m	1x1	8	6	2.25 kW
Field Segment 11	Flush Mount	Portrait (Vertical)	35°	252.55281°	0.0 m	1x1	8	5	1.88 kW
Field Segment 12	Flush Mount	Portrait (Vertical)	35°	72.44231°	0.0 m	1x1	8	5	1.88 kW
Field Segment 4	Flush Mount	Portrait (Vertical)	35°	72.20064°	0.0 m	1x1	69	66	24.8 kW
Field Segment 13	Flush Mount	Portrait (Vertical)	35°	251.7989°	0.0 m	1x1	8	6	2.25 kW
Field Segment 14	Flush Mount	Portrait (Vertical)	35°	71.84963°	0.0 m	1x1	8	6	2.25 kW

Detailed Layout

