

WHALLEY RANGE 11-18 HIGH SCHOOL

Wilbraham Road, Manchester, M16 8GW, United Kingdom | 30 Jul 2025



SYSTEM OVERVIEW

 838 PV modules

 4 Inverters

 838 Optimizers

SIMULATION RESULTS



Installed DC Power

385.48 kWp



Max Achieved AC Power

266.40 kW



Annual Usable Solar Production

351.06 MWh



Annual CO₂ Emission Saved

67.89 t



Annual Equivalent Trees Planted

3,118



Max Achieved DC Power

338.63 kW



DC/AC Oversizing

127 %



Max Active AC Power

266.40 kW



Performance Ratio

89 %



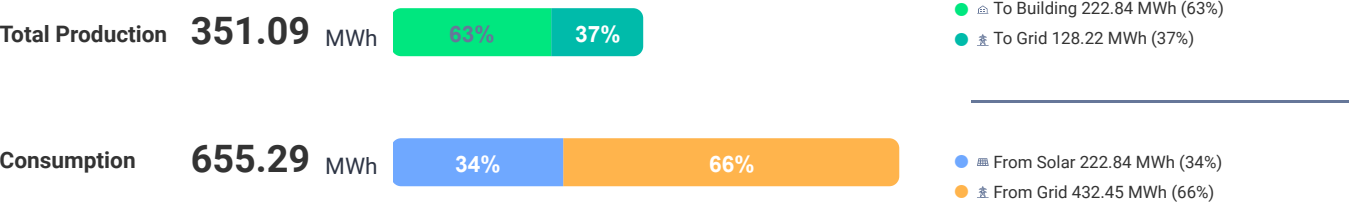
Annual Specific Production

911 kWh/kWp

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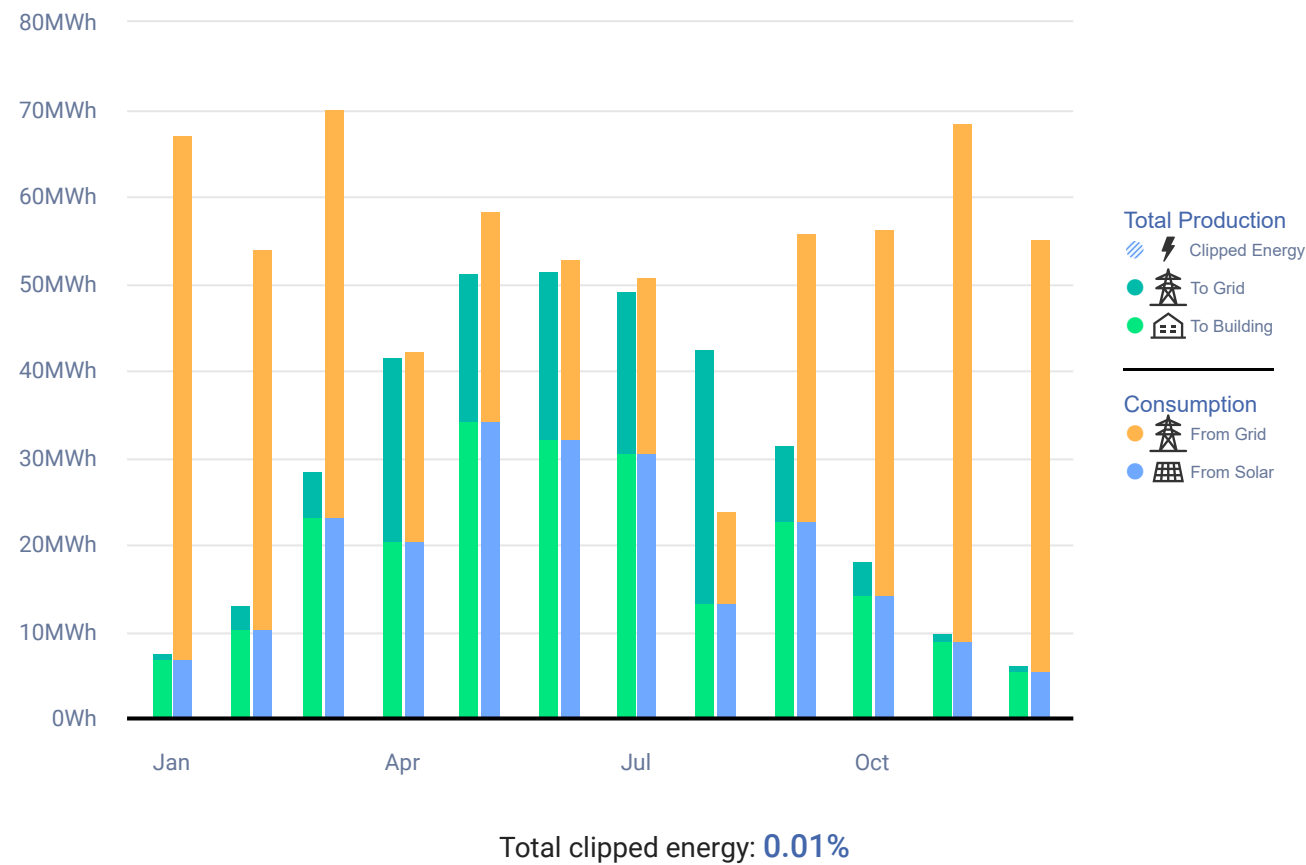
ANNUAL CONSUMPTION AND PRODUCTION RESULTS



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ESTIMATED MONTHLY ENERGY



Month	Production (kWh)			Clipped Energy (kWh)	Consumption (kWh)		
	To Home (kWh)	To Grid (kWh)			From PV (kWh)	From Grid (kWh)	
Jan	7,488	6,991	497	-	67,103	6,991	60,113
Feb	13,139	10,439	2,700	-	53,919	10,439	43,480
Mar	28,403	23,288	5,116	-	70,221	23,288	46,934
Apr	41,639	20,354	21,285	-	42,262	20,354	21,907
May	51,283	34,289	16,994	16	58,349	34,289	24,060
Jun	51,517	32,129	19,388	7	52,982	32,129	20,853
Jul	49,258	30,477	18,781	3	50,776	30,477	20,300
Aug	42,599	13,405	29,195	-	23,846	13,405	10,442
Sep	31,573	22,810	8,763	-	55,749	22,810	32,938
Oct	18,064	14,149	3,914	-	56,251	14,149	42,102
Nov	9,839	8,937	902	-	68,582	8,937	59,645
Dec	6,260	5,572	687	-	55,251	5,572	49,679

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PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
56	JA Solar, JAM72S20-460/MR (1500V)	25.8 kWp			179°	9°
41	JA Solar, JAM72S20-460/MR (1500V)	18.9 kWp			271°	23°
88	JA Solar, JAM72S20-460/MR (1500V)	40.5 kWp			87°	32°
132	JA Solar, JAM72S20-460/MR (1500V)	60.7 kWp			121°	10°
132	JA Solar, JAM72S20-460/MR (1500V)	60.7 kWp			301°	10°
22	JA Solar, JAM72S20-460/MR (1500V)	10.1 kWp			179°	25°
42	JA Solar, JAM72S20-460/MR (1500V)	19.3 kWp			269°	22°
33	JA Solar, JAM72S20-460/MR (1500V)	15.2 kWp			179°	16°
72	JA Solar, JAM72S20-460/MR (1500V)	33.1 kWp			179°	17°
20	JA Solar, JAM72S20-460/MR (1500V)	9.2 kWp			89°	24°
31	JA Solar, JAM72S20-460/MR (1500V)	14.3 kWp			179°	32°
44	JA Solar, JAM72S20-460/MR (1500V)	20.2 kWp			89°	17°
30	JA Solar, JAM72S20-460/MR (1500V)	13.8 kWp			269°	25°
35	JA Solar, JAM72S20-460/MR (1500V)	16.1 kWp			179°	35°
13	JA Solar, JAM72S20-460/MR (1500V)	6 kWp			179°	25°
15	JA Solar, JAM72S20-460/MR (1500V)	6.9 kWp			269°	35°
32	JA Solar, JAM72S20-460/MR (1500V)	14.7 kWp			89°	25°
Total: 838		385.5 kWp				

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BILL OF MATERIALS (BOM)

Items	Part Number	Quantity	Price (£)	Total (£)
 SE66.6K Synergy Manager		4		
 P850 (verify waiver conditions)		838		
 JAM72S20-460/MR (1500V)		838	0.00	0.00

ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE66.6K Synergy Manager 85.54kW 128% Oversizing	Center Unit		
	1 x string	25 x P850 (verify waiver conditions)	25
	1 x string	24 x P850 (verify waiver conditions)	24
	1 x string	27 x P850 (verify waiver conditions)	27
	1 x string	26 x P850 (verify waiver conditions)	26
	Left Unit		
	1 x string	25 x P850 (verify waiver conditions)	25
	3 x strings	24 x P850 (verify waiver conditions)	24
	Center Unit		
 1 xSE66.6K Synergy Manager 85.04kW 128% Oversizing	1 x string	30 x P850 (verify waiver conditions)	30
	2 x strings	28 x P850 (verify waiver conditions)	28
	1 x string	26 x P850 (verify waiver conditions)	26
	Left Unit		
	2 x strings	25 x P850 (verify waiver conditions)	25
	1 x string	24 x P850 (verify waiver conditions)	24
	1 x string	26 x P850 (verify waiver conditions)	26

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ELECTRICAL DESIGN (CONTINUED)

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE66.6K Synergy Manager Center Unit 84.63kW 127% Oversizing	⌚ 4 x strings	 28 x P850 (verify waiver conditions)	 28
	Left Unit		
	⌚ 1 x string	 25 x P850 (verify waiver conditions)	 25
	⌚ 2 x strings	 27 x P850 (verify waiver conditions)	 27
	⌚ 1 x string	 26 x P850 (verify waiver conditions)	 26
 1 xSE66.6K Synergy Manager Center Unit 83.42kW 125% Oversizing	⌚ 1 x string	 21 x P850 (verify waiver conditions)	 21
	⌚ 2 x strings	 25 x P850 (verify waiver conditions)	 25
	⌚ 1 x string	 26 x P850 (verify waiver conditions)	 26
	Left Unit		
	⌚ 1 x string	 30 x P850 (verify waiver conditions)	 30
	⌚ 2 x strings	 28 x P850 (verify waiver conditions)	 28
	⌚ 1 x string	 27 x P850 (verify waiver conditions)	 27

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SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

Time zone	BST (London)
Weather station	Manchester-Ringway (10 km away)
Station altitude	69 m
Station data source	Meteonorm 8.2
Grid	400V L-L, 230V L-N



LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Bi-Facial Albedo	0.30
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor Uc (const) Flush mount	20
Thermal loss factor Uc (const) Tilted	29
LID loss factor	0%
System unavailability	0%