

LADYBARN PRIMARY SCHOOL

Briarfield Road 46, Manchester, M20 4SS, United Kingdom | 18 Jul 2025



SYSTEM OVERVIEW



162 PV modules



1 Inverter



81 Optimizers

SIMULATION RESULTS



Installed DC Power

74.52 kWp



Max Achieved AC Power

50.00 kW



Annual Usable Solar
Production

66.03 MWh



Annual CO₂ Emission Saved

12.77 t



Annual Equivalent Trees
Planted

586



Max Achieved DC Power

65.17 kW



DC/AC Oversizing

130 %



Max Active AC Power

50.00 kW



Performance Ratio

89 %



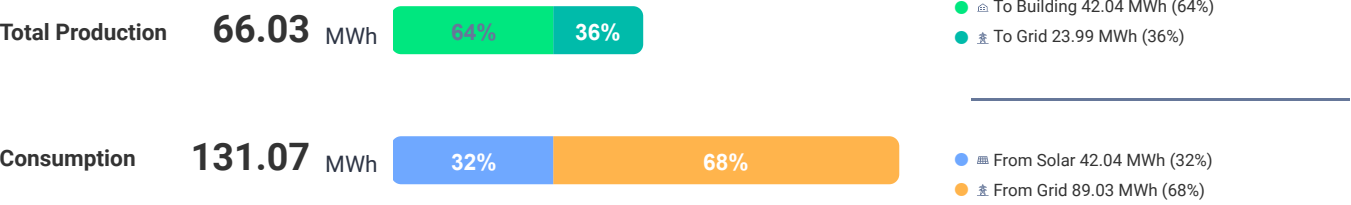
Annual Specific Production

886 kWh/kWp

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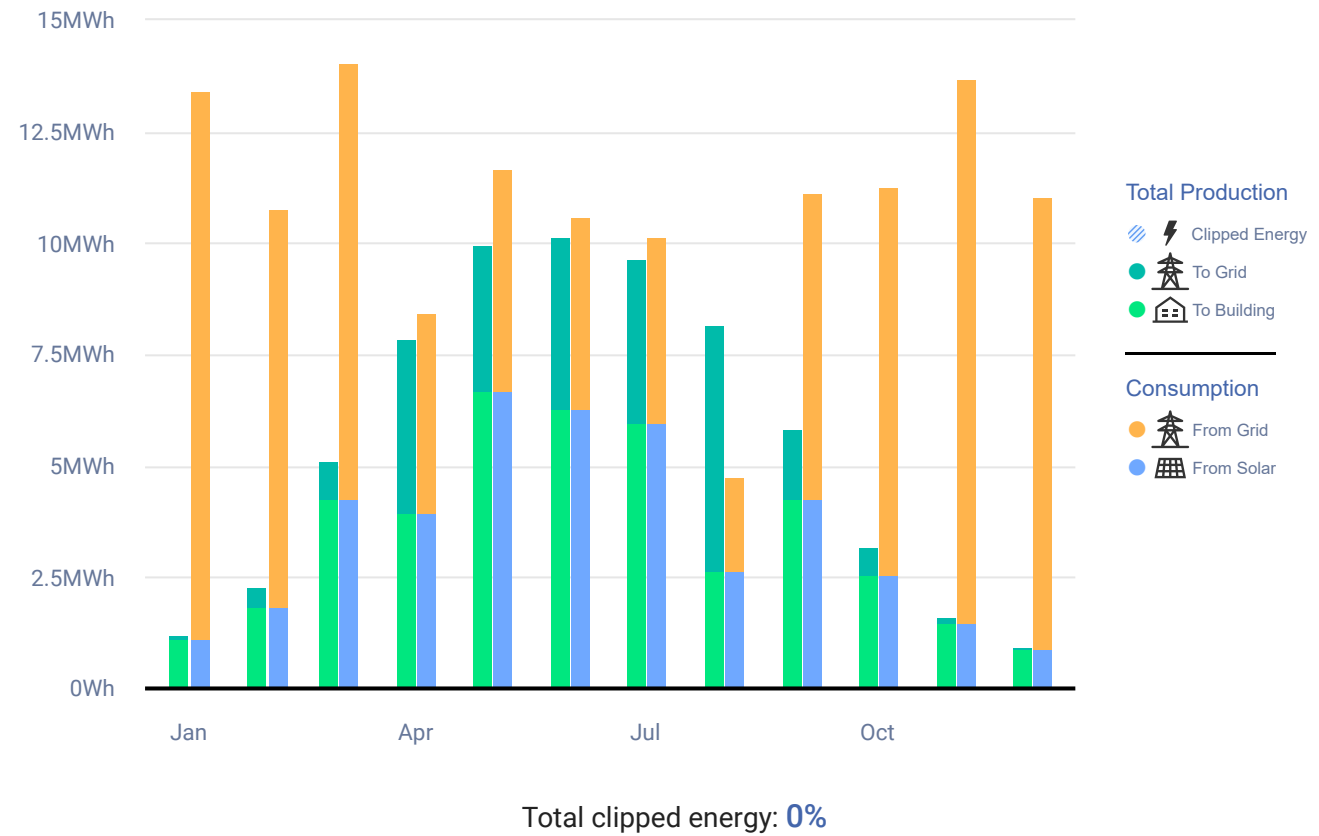
ANNUAL CONSUMPTION AND PRODUCTION RESULTS



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ESTIMATED MONTHLY ENERGY



Month	Production (kWh)	To Home (kWh)	To Grid (kWh)	Clipped Energy (kWh)	Consumption (kWh)	From PV (kWh)	From Grid (kWh)
Jan	1,200	1,140	59	-	13,422	1,140	12,282
Feb	2,297	1,863	433	-	10,785	1,863	8,921
Mar	5,141	4,274	867	-	14,046	4,274	9,772
Apr	7,878	3,940	3,938	-	8,453	3,940	4,513
May	9,977	6,682	3,296	3	11,671	6,682	4,989
Jun	10,132	6,292	3,840	-	10,597	6,292	4,306
Jul	9,654	5,974	3,679	-	10,156	5,974	4,182
Aug	8,161	2,634	5,526	-	4,770	2,634	2,135
Sep	5,837	4,274	1,563	-	11,151	4,274	6,877
Oct	3,199	2,579	620	-	11,251	2,579	8,672
Nov	1,595	1,481	114	-	13,718	1,481	12,236
Dec	959	907	52	-	11,051	907	10,144

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PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
152	JA Solar, JAM72S20-460/MR (1500V)	69.9 kWp			180°	0°
10	JA Solar, JAM72S20-460/MR (1500V)	4.6 kWp			198°	9°
Total: 162		74.5 kWp				

BILL OF MATERIALS (BOM)

Items	Part Number	Quantity	Price (£)	Total (£)
	SE50K Synergy Manager	1		
	P850 (verify waiver conditions)	81		
	JAM72S20-460/MR (1500V)	162	0.00	0.00

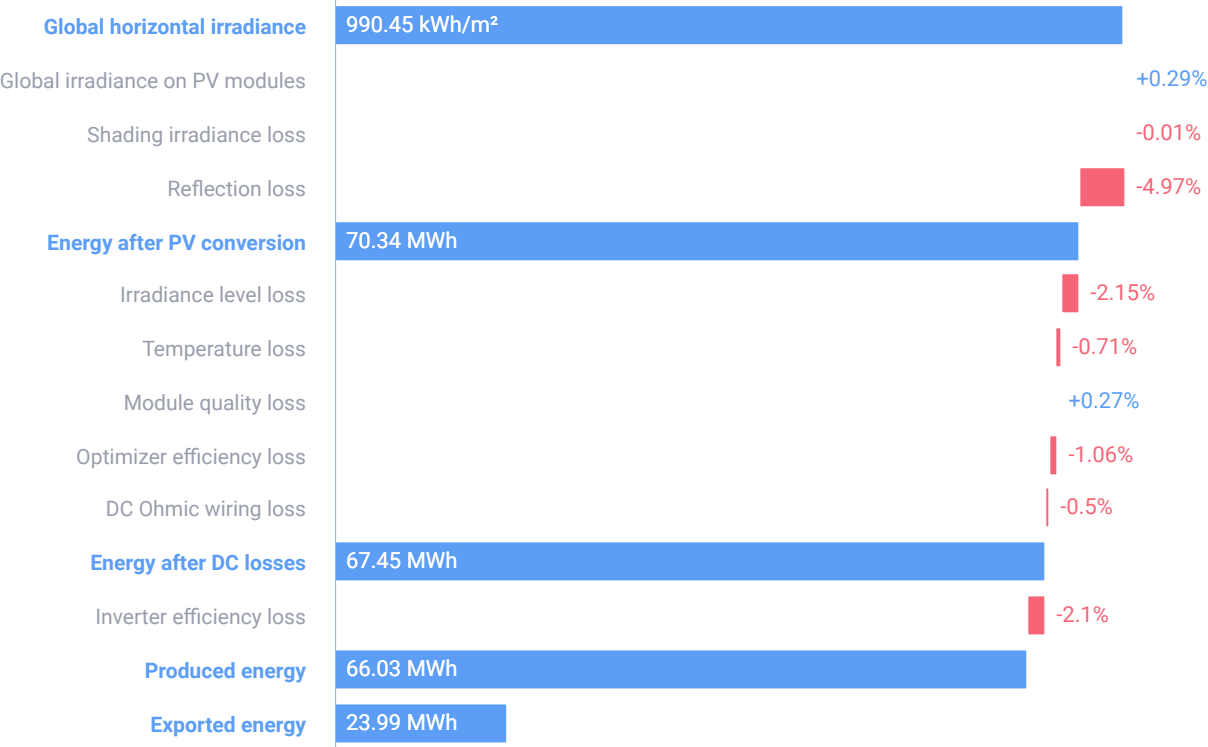
ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE50K Synergy ManagerCenter Unit 65.17kW 130% Oversizing	 1 x string	 21 x P850 (verify waiver conditions) (2:1)	 42
	 1 x string	 20 x P850 (verify waiver conditions) (2:1)	 40
	Left Unit		
	 2 x strings	 20 x P850 (verify waiver conditions) (2:1)	 40

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SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

Time zone	BST (London)
Weather station	Manchester-Ringway (9 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 U_c (const) Flush mount	20
Thermal loss factor U_c (const) Tilted	29
LID loss factor	0%
System unavailability	0%