

DIXONS BROOKLANDS ACADEMY

Manchester, M23 9BP, United Kingdom | 17 Jul 2025



SYSTEM OVERVIEW



497 PV modules



2 Inverters



250 Optimizers

SIMULATION RESULTS



Installed DC Power

228.62 kWp



Max Achieved AC Power

180.00 kW



Annual Usable Solar
Production

218.01 MWh



Annual CO₂ Emission Saved

42.16 t



Annual Equivalent Trees
Planted

1,936



Max Achieved DC Power

213.19 kW



DC/AC Oversizing

118 %



Max Active AC Power

180.00 kW



Performance Ratio

89 %

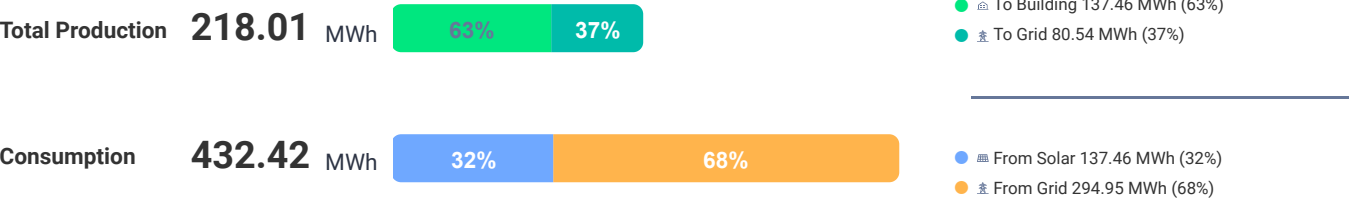


Annual Specific Production

954 kWh/kWp

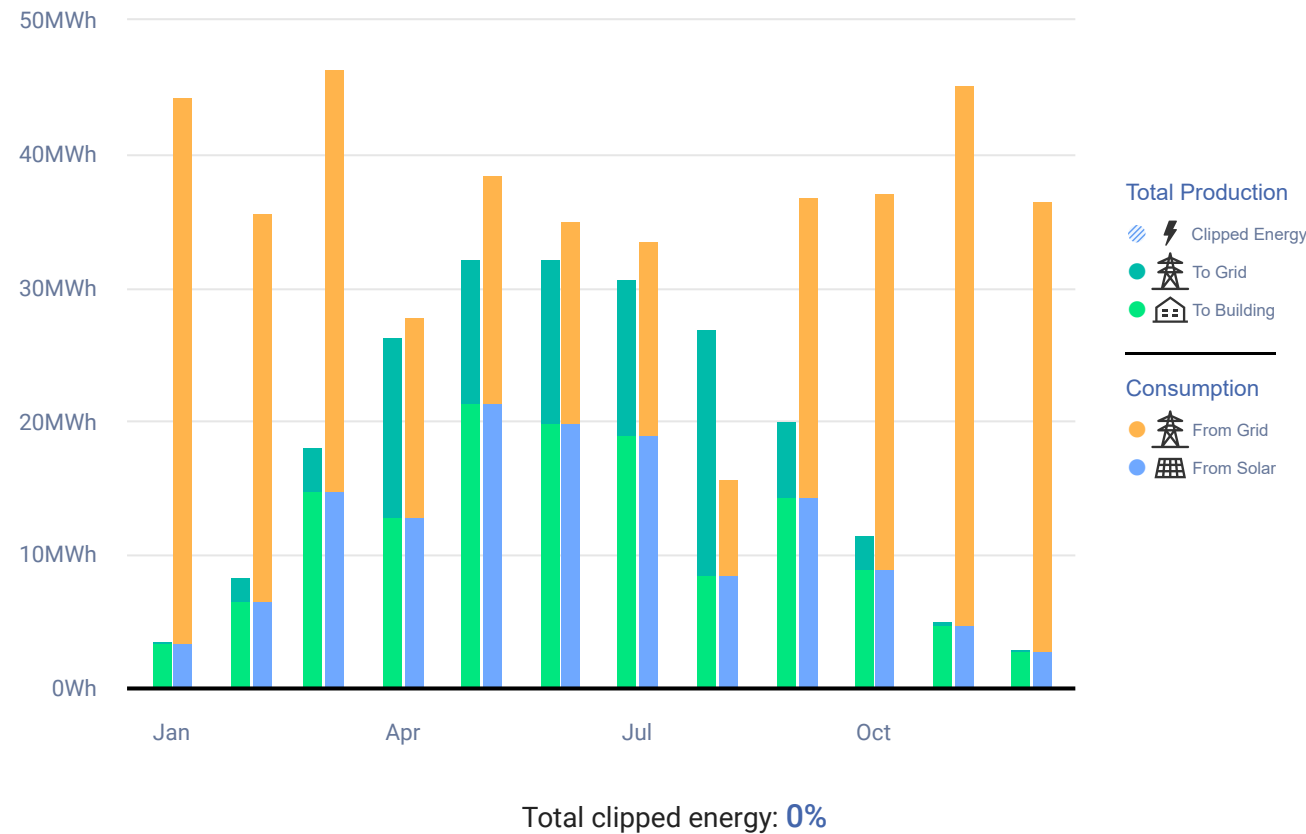
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ANNUAL CONSUMPTION AND PRODUCTION RESULTS



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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	3,634	3,467	167	-	44,280	3,467	40,814
Feb	8,317	6,577	1,740	-	35,580	6,577	29,003
Mar	18,169	14,834	3,335	-	46,338	14,834	31,504
Apr	26,356	12,820	13,536	-	27,888	12,820	15,067
May	32,158	21,386	10,773	-	38,504	21,386	17,118
Jun	32,149	19,931	12,218	-	34,962	19,931	15,031
Jul	30,705	18,976	11,729	-	33,506	18,976	14,531
Aug	26,885	8,514	18,371	-	15,736	8,514	7,222
Sep	20,091	14,410	5,681	-	36,788	14,410	22,378
Oct	11,475	8,974	2,501	-	37,119	8,974	28,145
Nov	5,137	4,768	369	-	45,256	4,768	40,488
Dec	2,931	2,808	123	-	36,459	2,808	33,652

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PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
303	JA Solar, JAM72S20-460/MR (1500V)	139.4 kWp			181°	10°
194	JA Solar, JAM72S20-460/MR (1500V)	89.2 kWp			222°	10°
Total: 497		228.6 kWp				

BILL OF MATERIALS (BOM)

Items	Part Number	Quantity	Price (£)	Total (£)
	SE90K Synergy Manager	2		
	P850 (verify waiver conditions)	250		
	JAM72S20-460/MR (1500V)	497	0.00	0.00

ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE90K Synergy ManagerCenter Unit 106.75kW 119% Oversizing	⌚ 2 x strings	 21 x P850 (verify waiver conditions) (2:1)	 42
Left Unit			
	⌚ 2 x strings	 21 x P850 (verify waiver conditions) (2:1)	 42
Right Unit			
	⌚ 1 x string	 21 x P850 (verify waiver conditions) (2:1)	 42
	⌚ 1 x string	 20 x P850 (verify waiver conditions) (2:1)	 40

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ELECTRICAL DESIGN (CONTINUED)

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE90K Synergy ManagerCenter Unit 106.44kW 118% 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		
	∞ 1 x string	 21 x P850 (verify waiver conditions) (2:1)	 42
	∞ 1 x string	 19 x P850 (verify waiver conditions) (2:1), 1 x P850 (verify waiver conditions) (1:1)	 39
	Right Unit		
	∞ 1 x string	 20 x P850 (verify waiver conditions) (2:1), 1 x P850 (verify waiver conditions) (1:1)	 41
	∞ 1 x string	 21 x P850 (verify waiver conditions) (2:1), 1 x P850 (verify waiver conditions) (1:1)	 43

SYSTEM LOSS DIAGRAM



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SIMULATION PARAMETERS



LOCATION & GRID

Time zone	BST (London)
Weather station	Manchester-Ringway (6 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%