

THE EAST MANCHESTER ACADEMY

Dapple Grove 18, Manchester, M11 3DS, United Kingdom | 30 Jul 2025



SYSTEM OVERVIEW



494 PV modules



2 Inverters



248 Optimizers

SIMULATION RESULTS



Installed DC Power

227.24 kWp



Max Achieved AC Power

178.97 kW



Annual Usable Solar Production

209.71 MWh



Annual CO<sub>2</sub> Emission Saved

40.55 t



Annual Equivalent Trees Planted

1,863



Max Achieved DC Power

210.51 kW



DC/AC Oversizing

117 %



Max Active AC Power

180.00 kW



Performance Ratio

87 %



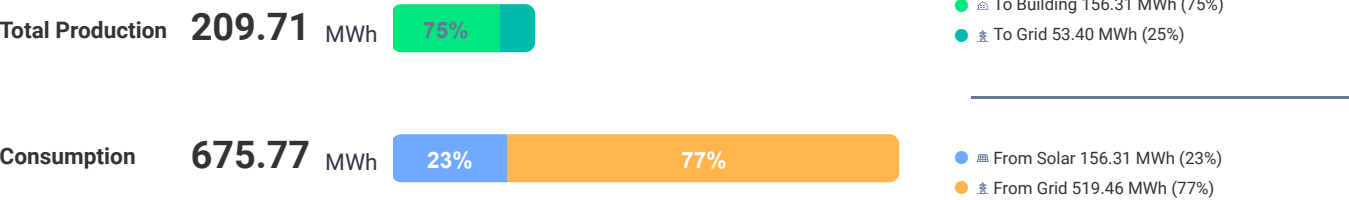
Annual Specific Production

923 kWh/kWp

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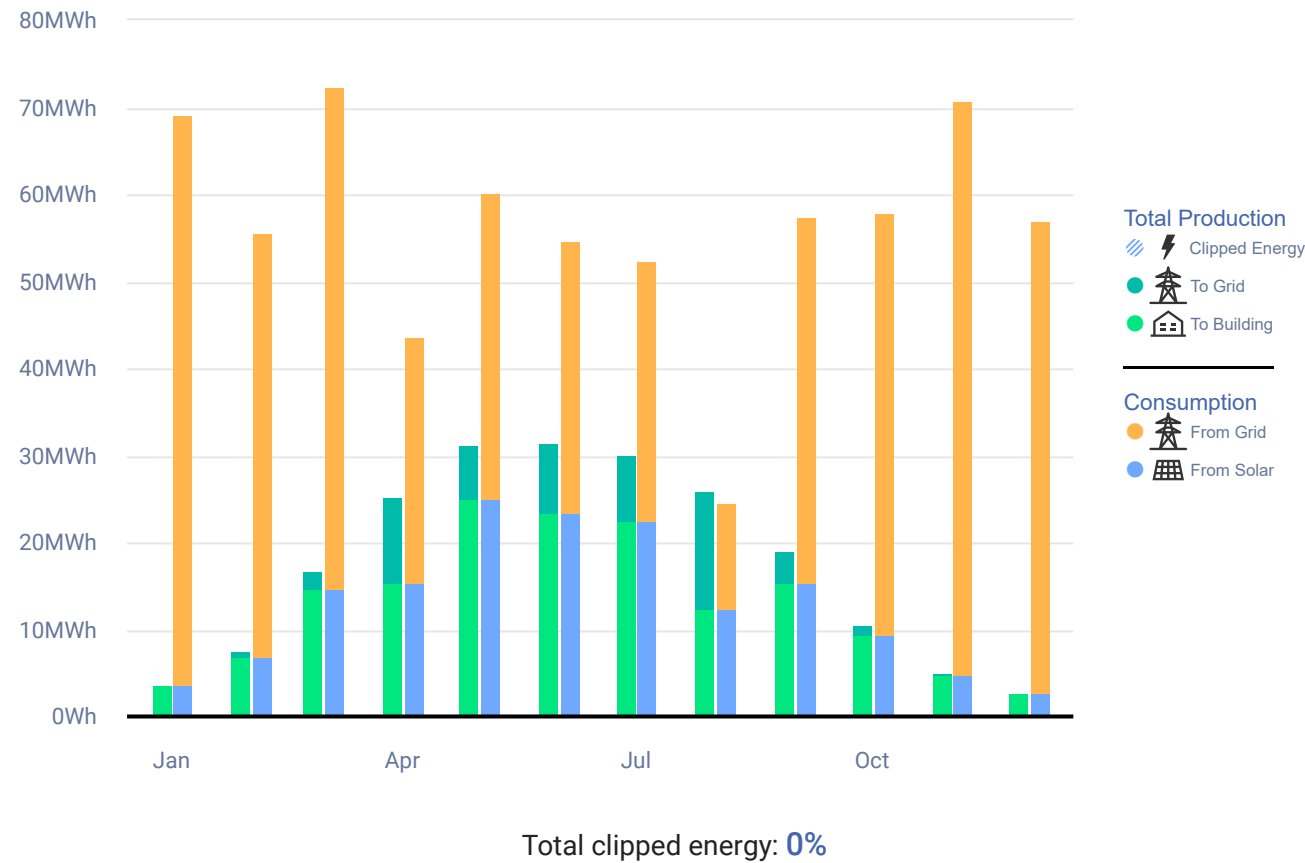
ANNUAL CONSUMPTION AND PRODUCTION RESULTS



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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   | 3,658            | 3,566         | 92     | -                    | 69,200            | 3,566           | 65,635 |
| Feb   | 7,659            | 6,920         | 739    | -                    | 55,604            | 6,920           | 48,683 |
| Mar   | 16,857           | 14,788        | 2,068  | -                    | 72,416            | 14,788          | 57,627 |
| Apr   | 25,356           | 15,310        | 10,046 | -                    | 43,582            | 15,310          | 28,272 |
| May   | 31,379           | 24,974        | 6,405  | 2                    | 60,173            | 24,974          | 35,199 |
| Jun   | 31,404           | 23,447        | 7,956  | -                    | 54,638            | 23,447          | 31,190 |
| Jul   | 30,091           | 22,474        | 7,618  | -                    | 52,363            | 22,474          | 29,889 |
| Aug   | 25,959           | 12,384        | 13,575 | -                    | 24,591            | 12,384          | 12,207 |
| Sep   | 18,973           | 15,357        | 3,616  | -                    | 57,491            | 15,357          | 42,134 |
| Oct   | 10,590           | 9,454         | 1,136  | -                    | 58,009            | 9,454           | 48,555 |
| Nov   | 5,077            | 4,940         | 137    | -                    | 70,725            | 4,940           | 65,785 |
| Dec   | 2,708            | 2,696         | 12     | -                    | 56,977            | 2,696           | 54,281 |

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PV MODULES

| # Module | Model                             | Peak power | Racking type                                                                        | Orientation                                                                         | Azimuth | Tilt |
|----------|-----------------------------------|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|------|
| 93       | JA Solar, JAM72S20-460/MR (1500V) | 42.8 kWp   |  |  | 120°    | 10°  |
| 191      | JA Solar, JAM72S20-460/MR (1500V) | 87.9 kWp   |  |  | 170°    | 10°  |
| 210      | JA Solar, JAM72S20-460/MR (1500V) | 96.6 kWp   |  |  | 147°    | 10°  |
| Total:   | 494                               | 227.2 kWp  |                                                                                     |                                                                                     |         |      |

BILL OF MATERIALS (BOM)

| Items                                                                                                               | Part Number | Quantity | Price (£) | Total (£) |
|---------------------------------------------------------------------------------------------------------------------|-------------|----------|-----------|-----------|
|  SE90K Synergy Manager           |             | 2        |           |           |
|  P850 (verify waiver conditions) |             | 248      |           |           |
|  JAM72S20-460/MR (1500V)         |             | 494      | 0.00      | 0.00      |

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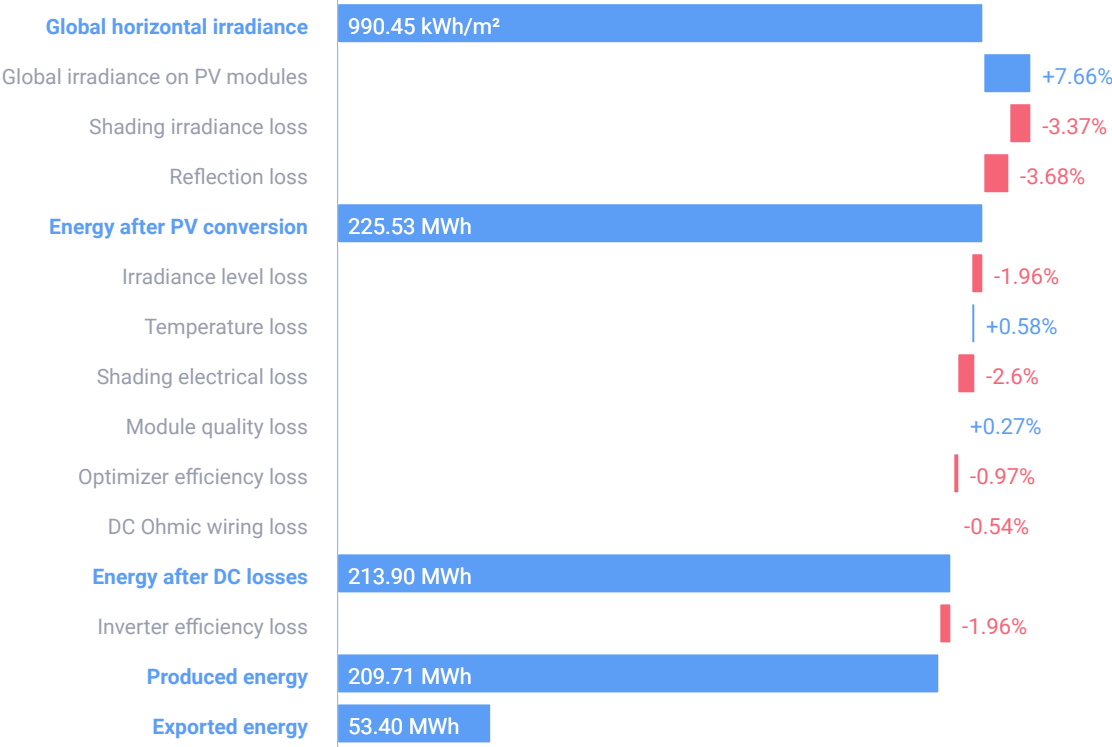
ELECTRICAL DESIGN

| Inverters & Storage                                                                                                                                               | Strings per inverter | Optimizers per string                                                                                                                                                     | PV modules per string                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <div> 1 xSE90K Synergy ManagerCenter Unit<br/>105.75kW   117% Oversizing</div>   | ∞ 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         |  20 x P850 (verify waiver conditions) (2:1)                                              |  40   |
|                                                                                                                                                                   | 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)                                            |  42 |
|                                                                                                                                                                   |                      |                                                                                                                                                                           |                                                                                          |
|                                                                                                                                                                   |                      |                                                                                                                                                                           |                                                                                          |
| <div> 1 xSE90K Synergy ManagerCenter Unit<br/>104.76kW   116% Oversizing</div> | ∞ 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         |  16 x P850 (verify waiver conditions) (2:1)                                            |  32 |
|                                                                                                                                                                   | ∞ 1 x string         |  20 x P850 (verify waiver conditions) (2:1)                                            |  40 |
|                                                                                                                                                                   | Right Unit           |                                                                                                                                                                           |                                                                                          |
|                                                                                                                                                                   | ∞ 1 x string         |  22 x P850 (verify waiver conditions) (2:1), 1 x P850 (verify waiver conditions) (1:1) |  45 |
|                                                                                                                                                                   | ∞ 1 x string         |  24 x P850 (verify waiver conditions) (2:1)                                            |  48 |
|                                                                                                                                                                   |                      |                                                                                                                                                                           |                                                                                          |
|                                                                                                                                                                   |                      |                                                                                                                                                                           |                                                                                          |

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SYSTEM LOSS DIAGRAM



SIMULATION PARAMETERS



LOCATION & GRID

|                     |                                 |
|---------------------|---------------------------------|
| Time zone           | BST (London)                    |
| Weather station     | Manchester-Ringway (14 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%      |