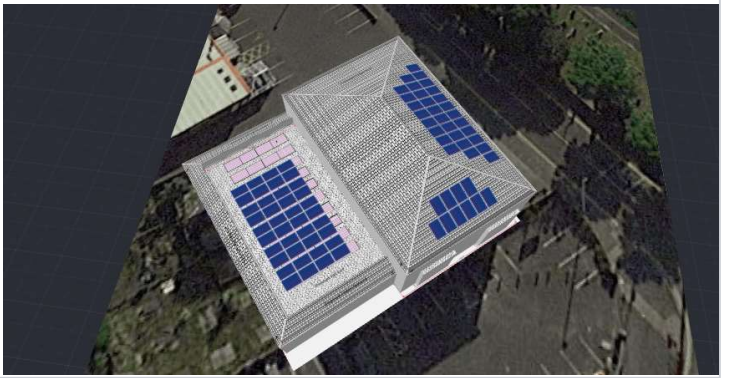
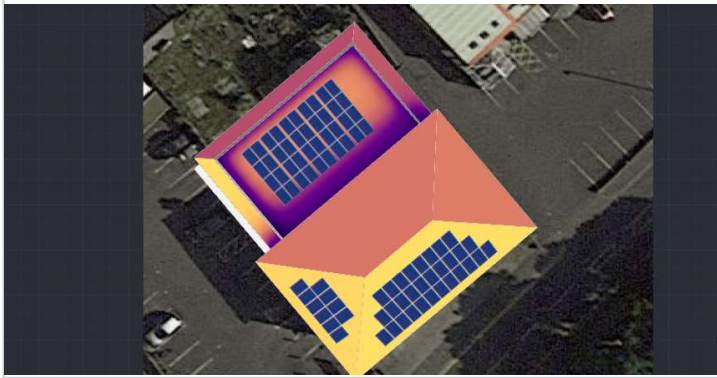
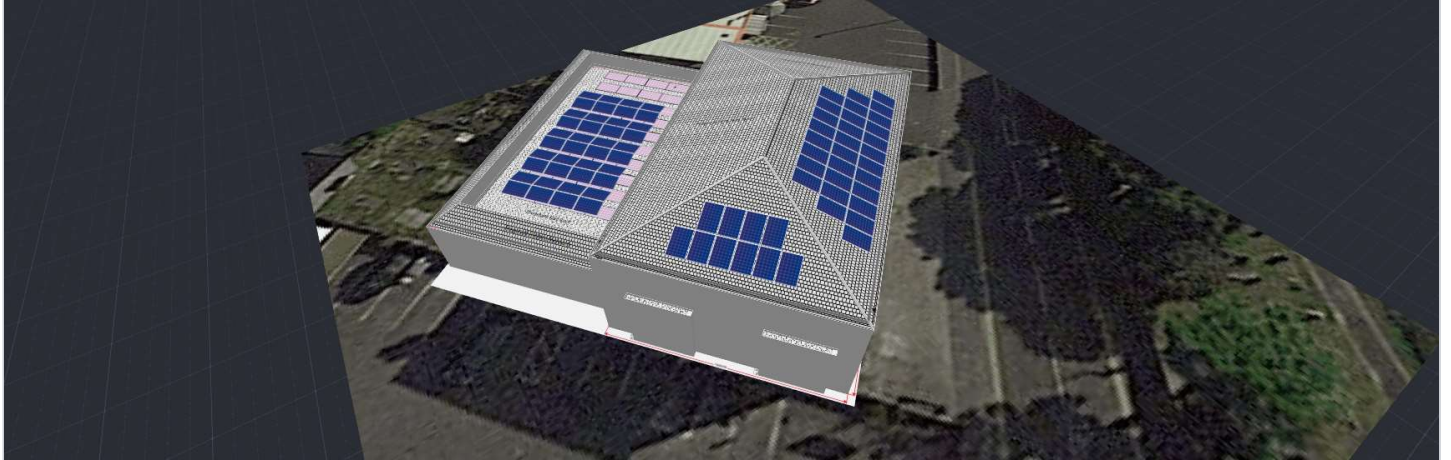


**CEC - BIRKDALE - PR8 5EG (REDESIGN NOV23)**

Cemetery Road 112, Southport, PR8 5EG, United Kingdom | 13 Nov 2023



**SYSTEM OVERVIEW**

 **80** PV modules

 **1** Inverter

 **40** Optimizers

**SIMULATION RESULTS**



Installed DC Power

**33.20 kWp**



Max Achieved AC Power

**25.00 kW**



Annual Energy Production

**27.05 MWh**



CO2 Emission Saved (Annually)

**5.23 t**



Equivalent Trees Planted (Annually)

**240**



Max Achieved DC Power

**29.69 kW**



DC/AC Oversizing

**119%**



Max Active AC Power

**25.00 kW**



Performance Ratio

**84%**



Performance Index

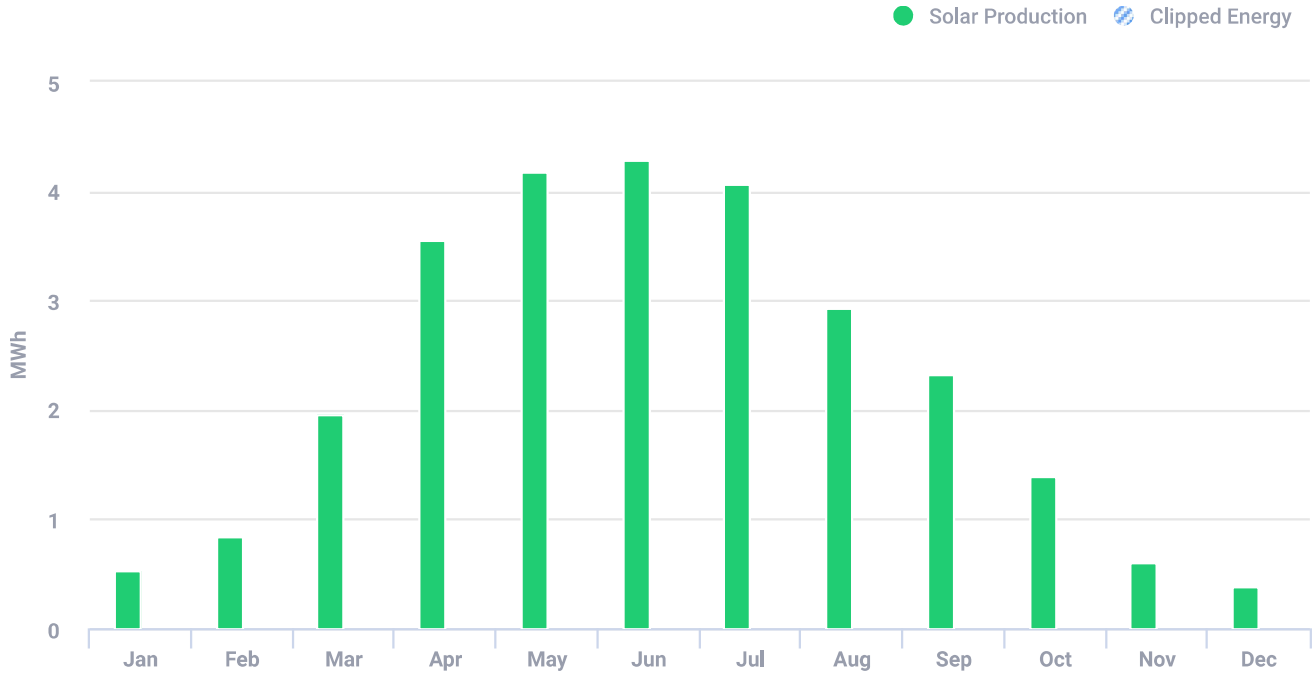
**815 kWh/kWp**

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**ESTIMATED MONTHLY ENERGY**



Total clipped energy: 0%

Month	Solar Production (kWh)	Consumption (kWh)	Self-consumption (kWh)	Clipped Energy (kWh)
Jan	527	-	-	-
Feb	849	-	-	-
Mar	1,955	-	-	-
Apr	3,560	-	-	-
May	4,177	-	-	-
Jun	4,281	-	-	-
Jul	4,059	-	-	-
Aug	2,923	-	-	-
Sep	2,330	-	-	-
Oct	1,387	-	-	-
Nov	613	-	-	-
Dec	384	-	-	-

**PV MODULES**

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
20	Hanwha Q.Cells GmbH, Q.Peak Duo M-G11S 415W (user-defined)	8.3 kWp			230°	10°

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**PV MODULES (CONTINUED)**

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
20	Hanwha Q.Cells GmbH, Q.Peak Duo M-G11S 415W (user-defined)	8.3 kWp			50°	10°
10	Hanwha Q.Cells GmbH, Q.Peak Duo M-G11S 415W (user-defined)	4.2 kWp			230°	20°
30	Hanwha Q.Cells GmbH, Q.Peak Duo M-G11S 415W (user-defined)	12.5 kWp			140°	20°
<b>Total:</b>	80	33.2 kWp				

**BILL OF MATERIALS (BOM)**

Items	Part Number	Quantity	Price (£)	Total (£)
	SE25K	1		
	P850	40		
	Q.Peak Duo M-G11S 415W	80		

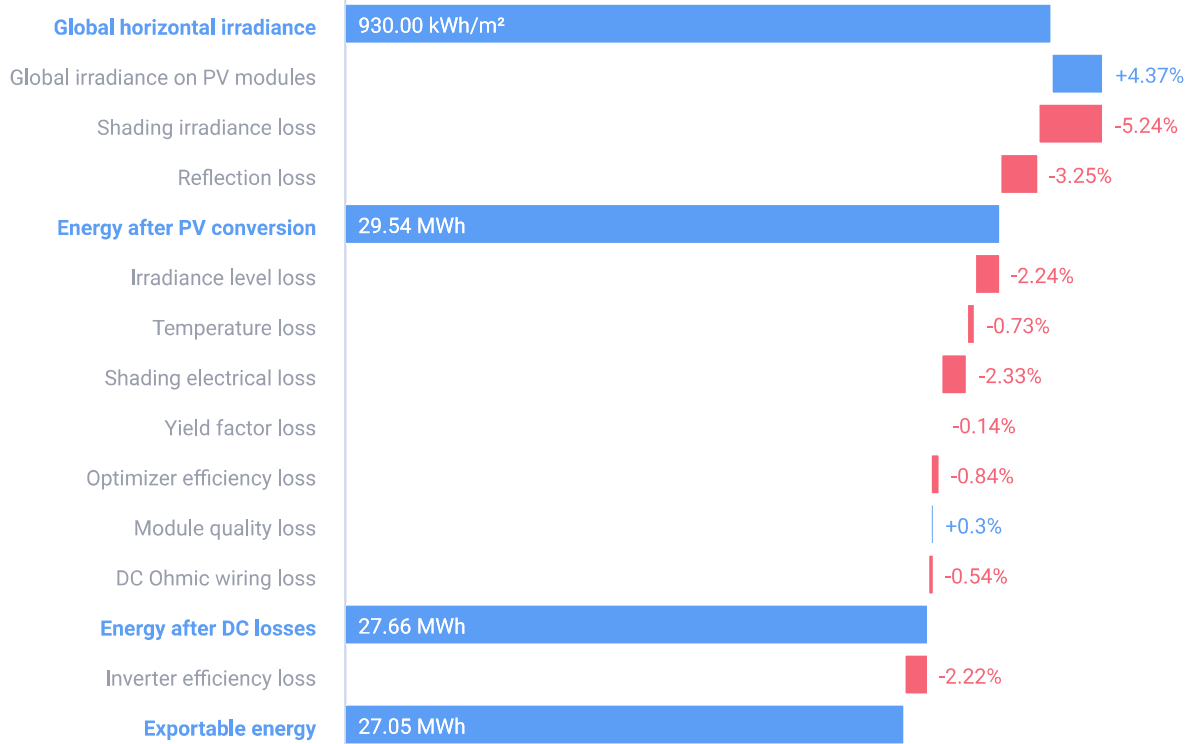
**ELECTRICAL DESIGN**

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
1 x SE25K 29.69kW   119% Oversizing	2 x strings	20 x P850 (2:1)	40

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### SYSTEM LOSS DIAGRAM



### SIMULATION PARAMETERS



#### LOCATION & GRID

Time zone	GMT (London)
Weather station	Aintree (17.48 km away)
Station altitude	13 m
Station data source	Meteonorm 7.1
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 <sub>c</sub> (const) Flush mount	20
Thermal loss factor U <sub>c</sub> (const) Tilted	29
LID loss factor	0%
System unavailability	0%