

## BRAEHEAD HOUSE

Main Street, Saint Boswells, TD6 0BE, United Kingdom | 13 Sept 2023



### SYSTEM OVERVIEW

 12 PV modules

 1 Inverter

 12 Optimizers

### SIMULATION RESULTS



Installed DC Power

4.80 kWp



Max Achieved AC Power

4.00 kW



Annual Energy Production

4.32 MWh



CO2 Emission Saved (Annually)

834.91 kg



Equivalent Trees Planted (Annually)

38



Max Achieved DC Power

4.66 kW



DC/AC Oversizing

116%



Max Active AC Power

4.00 kW



Performance Ratio

83%



Performance Index

899 kWh/kWp

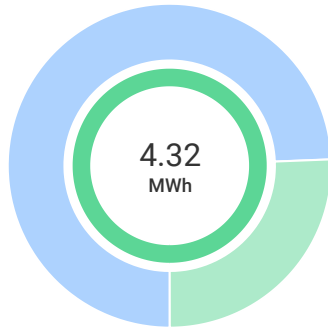
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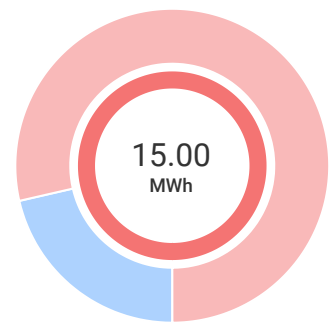
**SYSTEM PRODUCTION**

- █ Total Production - 100 %  
4.32 MWh
- █ Self-consumption - 74 %  
3.21 MWh
- █ Export - 26 %  
1.11 MWh



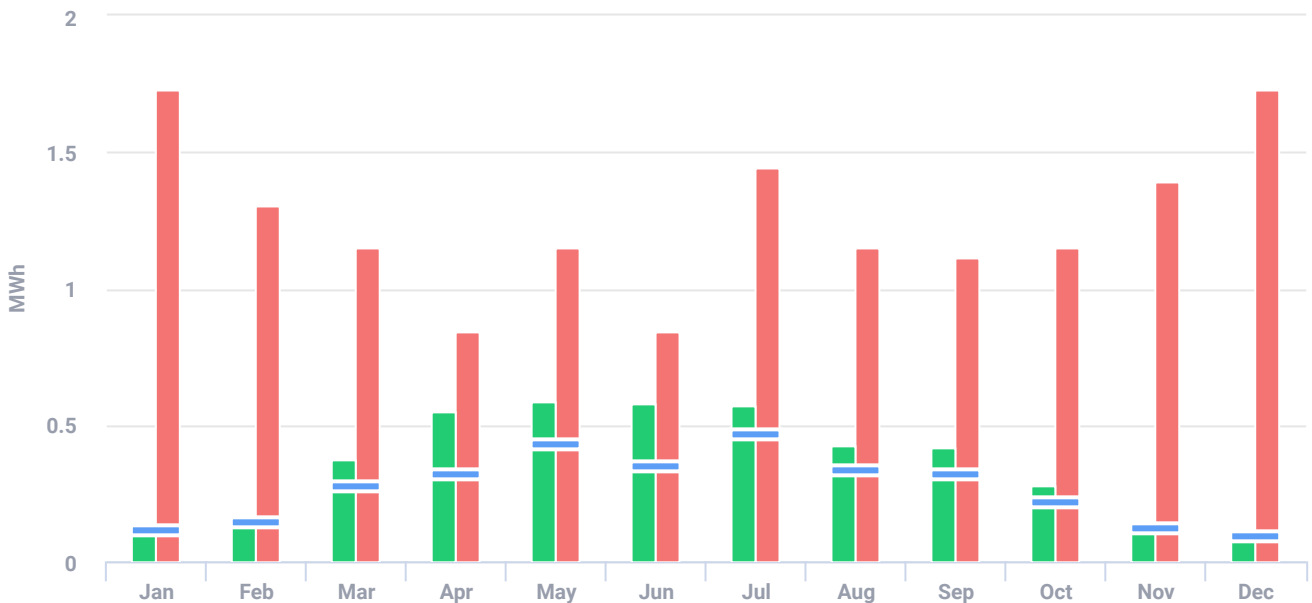
**CONSUMPTION**

- █ Total Consumption - 100 %  
15.00 MWh
- █ Self-consumption - 21 %  
3.21 MWh
- █ Import - 79 %  
11.79 MWh



**ESTIMATED MONTHLY ENERGY**

● Solar Production ● Consumption ● Self-consumption ● Clipped Energy



Total clipped energy: 0.08%

**PV MODULES**




# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
6	Suntech Power, STP400S-C54/Umhb Full Black	2.4 kWp			155°	27°
6	Suntech Power, STP400S-C54/Umhb Full Black	2.4 kWp			156°	46°
<b>Total:</b>	12	4.8 kWp				

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**BILL OF MATERIALS (BOM)**

Items	Part Number	Quantity	Price (£)	Total (£)
 SE4K-RWB (For short PV strings)		1		
 S440 input up to 440Wp, Max Isc 14.5A	S440-1GM4MRM	12	0.00	0.00
 STP400S-C54/Umhb Full Black		12		

**ELECTRICAL DESIGN**

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE4K-RWB (For short PV strings) 4.66kW   116% Oversizing	Ω 1 x string	 12 x S440	 12

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**SYSTEM LOSS DIAGRAM**



**SIMULATION PARAMETERS**



**LOCATION & GRID**

Time zone	BST (London)
Weather station	Kelso (13.45 km away)
Station altitude	40 m
Station data source	Meteonorm 7.1
Grid	400V L-L, 230V L-N



**LOSS FACTORS**

Near shading	Enabled
Albedo	0.20
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%