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BLOCK CHAIN RENEWABLE ENERGY SYSTEM

FOMSOD 66H EQUITABLE ENERGY H500 [500kg/ Batch] (Hybrid) **66H5**

TECHNICAL DATA

Drying Chamber:	2.35 m x 2.00 m x 3.10 m	Size:	500 Kg/Batch
Tray:	2.35 m x 1.75 m	Material:	*FGSS
No. of Trays:	65	Power Requirement:	100 W

System type: Hybrid

Collector Plane Orientation Tilt 30° Azimuth 0°

User's needs : Fixed constant load 100 W Global 876 kWh/Year

PV Array Characteristics

Total number of PV modules	No. modules	7	Unit Nom. Power	250 Wp
Array global power	Nominal (STC)	**1750 Wp**	At operating cond.	1332 Wp (50°C)
Array operating characteristics (50°C)	U mpp	27 V	I mpp	50 A
Total area	Module area	**11.55 m²**	Cell area	8.8 m²
Power Bank:	**4.8 kWh**		DOA:	2

Heat Exchanger/Drying Chamber Characteristics

Collection Efficiency:	98.0 %	Pick-up Efficiency:	75.0 – 90.0 %
Drying Efficiency:	90.0 %		
Drying Time (t) in hrs. @ 75 % Initial moisture content:	$4 \leq t \leq 18$		

Relative Humidity	**Initial**	**Final**
Capillary moisture:	65 %	46 %
Absorbed Moisture:	35 %	0 %

EQUITY POWER OUTLETS:

- Pumping Machine
- Milling Machine
- Street Lights
- Cooking
- Cooling for storage of finished products / yet to be processed products

PV Array loss factors

Thermal Loss factor	Uc (const)	20.0 W/m²k	Uv (wind)	0.0W/m²k/m/s
Wiring Ohmic Loss	Global array res.	9.2 mOhm	Loss Fraction	1.5% at STC
Serie Diode Loss	Voltage Drop	0.7V	Loss Fraction	2.3% at STC

System Production	**Available Energy**	**1906 kWh/year**	Specific prod.	1270 kWh/kWp/year
	Used Energy	874 kWh/year	Excess (unused)	993 kWh/year
	Performance Ratio PR	32.58 %	Solar Fraction SF	99.72 %
Loss of Load	Time Fraction	0.3 %	Missing Energy	2 kWh/year
Battery ageing (state of Wear)	Cycle SOW	92.1 %	Static SOW	91.7%
	Battery Lifespan	20 years		

CO_2 Balance

Relative Emissions (Conventional) Total: 2.73 tCO_2

Replaced Emissions Total: 7.70 tCO_2

System Production: 1905.71 kWh/yr Lifetime: 25 years

Annual Degradation: 1.0 %

Grid Lifecycle Emissions: 402 gCO_2/kWh

CO_2 Emission Balance **Total: 4.6 tCO_2**

System Lifecycle Emissions Details:

Item	**Modules**	**Supports**
LCE	1713 $kgCO_2$/kWp	2.68 $kgCO_2$/kg
Quantity	4.25 kWp	60.0 kg
Subtotal [$kgCO_2$]	2569	161

Saved CO_2 Emission: 4.6 tCO_2

COST: **8,700,000 NGN**

** Food Grade Stainless Steel*