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BLOCK CHAIN RENEWABLE ENERGY SYSTEM

FOMSOD 66H EQUITABLE ENERGY H400 [400kg/ Batch] (Hybrid)

66H4

TECHNICAL DATA

Drying Chamber:	1.88m x 1.58m x 2.48m	Size:	400 Kg/Batch
Tray:	1.88m x 1.38m	Material:	*FGSS
No. of Trays:	30	Power Requirement:	80 W

System type Hybrid

Collector Plane Orientation	Tilt 30°	Azimuth 0°
User's needs :	Fixed constant load 80 W	Global 350 kWh/Year

PV Array Characteristics

Total number of PV modules	No. modules	6	Unit Nom. Power	250 Wp
Array global power	Nominal (STC)	1500 Wp	At operating cond.	901 Wp (50°C)
Array operating characteristics (50°C)	U mpp	27 V	I mpp	33 A
Total area	Module area	9.9 m²	Cell area	5.8 m ²
Power Bank:	9.6 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 ≤ t ≤ 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/m ² k	Uv (wind)	0.0W/m ² k/m/s
Wiring Ohmic Loss	Global array res.	14mOhm	Loss Fraction	1.5% at STC
Series Diode Loss	Voltage Drop	0.7V	Loss Fraction	2.3% at STC

System Production	Available Energy	1329 kWh/year	Specific prod.	1296kWh/kWp/year
	Used Energy	701 kWh/year	Excess (unused)	278.5kWh/year
	Performance Ratio PR	39.21 %	Solar Fraction SF	100.00%
Loss of Load	Time Fraction	0.0%	Missing Energy	0.0kWh/year
Battery ageing (state of Wear)	Cycle SOW	95.2%	Static SOW	91.7%
	Battery Lifespan	20 years		

CO₂ Balance

Relative Emissions (Conventional)	Total:	1.82 tCO ₂
Replaced Emissions	Total:	16.0 tCO ₂
System Production:	1329.30 kWh/yr	Lifetime: 25 years
		Annual Degradation: 1.0 %
Grid Lifecycle Emissions:	402 gCO ₂ /kWh	
CO₂ Emission Balance	Total:	12.1 tCO₂

System Lifecycle Emissions Details:

Item	Modules	Supports
LCE	1713 kgCO ₂ /kWp	2.68 kgCO ₂ /kg
Quantity	1.00 kWp	40.0 kg
Subtotal [kgCO₂]	1713	107
Saved CO ₂ Emission:	12.1 tCO ₂	

COST: 7,600,000 NGN

* Food Grade Stainless Steel