**Solar Powered Poultry Farm Quotation**

Lighting

Ventilation ans Cooling – Fans and exhaust systems

Heating

Security Systems – Surveillance cameras and Alarms

Incubators and Hatchery Equipment – Constant Power supply

Emergency Backup – UPS, Generators/ Battery Storage

**The Power System**

Solar Panels Capacity

Inverter

Battery Storage

Charge Controller

Lighting load; LEDs

VAC; Fans

Heating; Electric Heaters

Security Systems; Alarms and Surveillance Cameras

Incubators and Hatchery; Constant Power supply

Emergency Backup; UPS

Monitoring and Control System; Track Solar Energy Production, Consumption and the state of the Power System

Wiring and Electrical Infrastructure

**Loads**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Appliances (Load)** | **Rating (W) – Each load** | **No. of Loads** | **Total Power (W)** | **Hours of Use (H)** | **Total Energy (Wh)** |
| Panel Lights (LED) | 20 | 10 | 200 | 15 | 3000 |
| Exhaust and Circulation Fans | 100 | 5 | 500 | 3 | 1500 |
| Forced – Air Heaters | 2000 | 3 | 6000 | 2 | 12000 |
| Egg-Incubators | 500 | 1 | 500 | 24 | 12000 |
| Ventilation Fans | 30 | 2 | 60 | 3 | 180 |
| Hatchers | 300 | 1 | 300 | 24 | 7200 |
| Security Systems (Cameras and Alarms) | 10 | 4 | 40 | 24 | 960 |
| AC | 1000 | 3 | 300 | 2 | 600 |
| **Total** |  |  |  | **7600 W** | **37440 Wh** |

Inverter must meet Peak load demand – **8000 W**

Energy Requirement; **38000 WH**

**Using 12v Battery System**

Ampere Hours – **3166.67AH**

Using 200 AH 12v Batteries = 16 Batteries

Charging Requirements: Assume 8 hrs

Charging Current = 100A

Charge Controller rating = 100A

PV rating = 1200W

**NOT RECOMMENDED**

**Using 48v Battery System**

Ampere Hours – **791.67 AH**

Using 200AH 48V Batteries = **4 Batteries**

Charging Current = **800 AH**

Charging Controller = **100A**

PV rating = **4800W – 4.8kva/5kva**

Using 400W PV Arrays – **12PV Arrays**

**Have 3 sets Consisting of 4 - 400W PV Arrays connected in Series and for each set, connect in Parallel to achieve a 48V/4800W**

The 48V/200AH and 48/System is recommended – **Allows for 3 days Autonomy**