HOW TO DESIGN OFF GRID SOLAR SYSTEM

I: Key Parts and Function

1. Solar Panel:

To make DC Power by Sunshine.

The Solar panel capacity will decide generate electricity capacity of the system.

2. Solar Controller

battery charge and discharge management

Battery protection.

3.Battery

stock the Energy was made by solar panel.

Solar Battery: Deep Cycle Gel Battery or LiFePo4 Battery

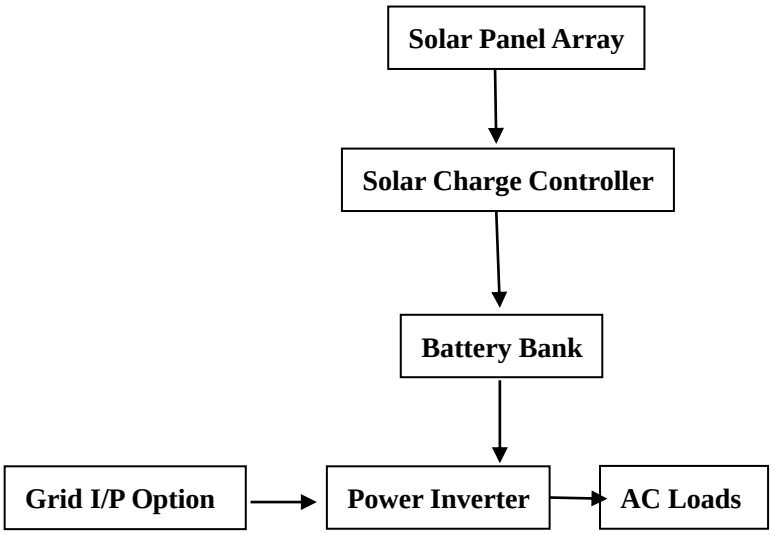
4. Power Inverter

Inverter Battery DC Power to AC power

The most time it have Grid Charger Function too .

Inverter + Grid Charger

II: Stand Alone Type Solar System Diagram



III: HOW TO COUNT CAPACITY

1. **Consume Capacity per day**

   Loads W * Runing hours per = WH **(Watt* hours =WH)**

   Consumption determines how much electricity is needed

   (E.g: total 500W*4hrs =2KWH)

2. **How many Solar Panel will need?**

(Consume Capacity WH / PV efficient running hour) *1.1 or 1.2 = W **(WH/H=W*1.2)**

PV efficient running hour: different country is not same, China usually to think about 4 hours

1.1-1.2：think about 10-20% more for efficiency reason

(E.g : 2KWH/4hrs=500W*1.2=600WP)

3. How big Controller will you need?

Solar Panel Capacity WP/ System VDC= W/V=Amp （W = V *A ）

(E.g.: 600W/12VDC= 50Amp. then 12VDC 50Amp, 600W/24VDC=25Amp 24VDC 25Amp)

3. **How many Batteries Will you need?**

   Consume Capacity WH / system VDC =AH (WH/V=Ah, W=V*A)

   When need More day's backup, need * days

   (E.g. 2000WH/12V= 166AH, if you need Two days then 166AH*2=332AH)

4. **How Big Inverter will you need?**

Base on the Total Loads capacity+ think about Starting Surge Capacity+ Keep the Loads Rate within 80%

Special loads: Air conditioner, Motor pump, microwave oven need think about 3 times starting surge

（E.g. 500W / 0.8=625W, no special loads ）

5: System VDC need Same principle: PV panel – Controller – Battery – Inverter, the VDC Must need same.

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