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Battery Bank Size Worksheet

In this worksheet we are going to calculate the number of batteries you will need in order to safely hold the power you need for the devices you listed in the Load Calculations Worksheet.

I have made some assumptions for you based on what I feel are good conservative numbers to use. Please feel free to change these numbers to match your personal circumstances. If you are unsure, just use the numbers that I have provided you.

The first assumption I made was that you should account for 3 cloudy days in a row. If you know that you have usually have more cloudy days in a row than that, go ahead and up the number. It will result in you needing more battery storage capacity, but that's better than running out of electricity.

The second assumption that I made was that you do not want to discharge the battery more than 50%. The less you discharge your batteries the longer they will last. I personally try not to get mine down below 50%. Some people, however, discharge their batteries down as low as 80%, leaving only 20% charge in the battery. If you want to change this number to discharge lower, you need to *raise* the number in the worksheet. For example, if you want to discharge 80% of the battery, change 0.5 to 0.8.

The third assumption is that you will use a 12V battery bank. If you decide to use a 24V or 48V system, change the number in line (B) accordingly.

- A) Total watt hours per day for Load Calculation Worksheet. _____
- B) Divide (A) by 12 to get amhours per day. _____
- C) Multiply (B) by 3 to account for 3 cloudy days in a row. _____
- D) Divide (C) by 0.5 to account for not discharging the battery below 50%. _____
- E) Write down the amhour rating from your batteries. _____
- F) Divide (D) by (E). _____
This is the number of batteries you need!

Okay, now that you have calculated your loads, solar panel requirements, and battery bank requirements, you are ready to build and design your solar electric system.