

WHAT CAN I RUN WITH ONE OF THESE PANEL?



Posted by Brian Wurts on Mar 05, 2014, Overland Solar

I have been getting a lot of emails and calls asking this question. It all depends on how many batteries you have, how many amp hours those batteries provide, and the size of the panel you are charging with. That number is usually printed on the battery. With a good deep cycle battery you can take it below 50% (1/2 the amp hours) but to make them last they should be charged when they reach 50%.

When you know your amp hours you can figure how many watts will put those hours back into your system every day. When you calculate how many amps each device or appliance takes you can add up the total for an hour of use. For an example if you need 10 amps an hour (like I do in my small van based RV) and two good typical deep cycle 12 volt batteries at 150 amp hours each you have 300 amp hours. Using 50% of this gives you 150 amp hours so your demand of 10 amps can be met for 15 hours before getting to 50% of the batteries. Outside of the winter months it's not dark that long before your panels start charging amp hours back to your batteries in daylight.

I came up with my portable panel design for my personal use and never considered I would make more than my own. I have all of the small solar charges available and some work fine for charging a cell phone or even my iPad but I camp in the most remote places I can get and RV "hook-ups" are not a part of that equation. I needed at least 80 watts to put enough juice back in my two 12 volt batteries to run the fridge, lights, roof fan, and flat screen TV and DVD player. With all of that running I use approximately 10 amps but obviously I don't have all the light and TV on all night.

I had a small roof mounted panel but there was simply not enough room to get my gear and a panel big enough on the roof not to mention the drilling through the vehicle and wiring the charge controller in between. The other problem with a fixed roof panel is the amount of time it is getting the most energy from the sun is only in the middle of the day. As with most adventure travelers I have precious little space to store extras so the triple fold design was the best option to have a real world solar panel that could do what I wanted.

I came up with the 90 watt panel to fit my needs which gave me just a bit more than I needed. When I am taking the Jeep into the back country where I have a simple small inverter to charge my devices and led lights I needed something even more compact so I came up with the 60 watt panel. For some of my friends with larger RV's and more power needs (and a bit more storage area) I had the 150 watt made. The larger panels are also popular with hunting cabins and those who want to be prepared in case of natural or manmade disaster when grid power is not available. It all comes down to how much power you need, the battery system you need to charge, and how many hours of sun you have. The larger the panel the more power you put in your batteries in less time.

I live completely off grid on my ranch in eastern Washington in a 400 square foot cabin on a ridge when I am not on the road in the RV. I have the fridge, 32 inch flat screen, DVD, water pump, on demand water heater (propane), plenty of my LED lights, and a good cell phone booster allowing me to stream movies and write blogs like this. I power my three 12 volt deep cycle batteries with two of my 150 watt panels. Before I go to bed I turn the panels to the direction of the sunrise, move it once mid-day, and then again towards sunset for the afternoon. This gives me 10 hours of charge time which is more than double what I can get from a fixed mounted roof panel. It can be done and not paying a monthly electric bill or relying on others for grid power feels very good.