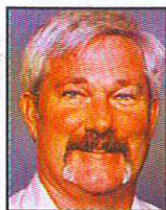


When going solar, know your battery storage needs

Off-grid systems rely on battery storage when the sun goes down. Batteries are a significant part of the cost of an off-grid system or a grid-tie system with battery backup. The type of battery used is contingent on the location, size of the bank, temperature and environment. Battery types are wet cell, gel, cadmium and absorbent glass mat.

The charging characteristics of these batteries are different. The setting of the charge voltages, bulk and float varies. Know what the manufacturer's recommendation is when setting up the charging source.

Wet cell batteries have a max voltage of 14.3. Gel batteries max voltage is 13.8-14.1, it is best to stay on the low end of this setting for gels. AGM batteries max is 14.4. Out of all the batteries out there on the market AGM works best. They are maintenance free. AGM type batteries have a quicker recharge rate, better efficiency. Also AGM batteries hold up well under heavy discharging.



Stewart Somerville
Alternative
Power Systems

This is not the case with Gel type batteries. Gel batteries have a tendency to form air pockets which lead to the drying out of the cells. They do not like the heavy discharging that is present in off-grid systems.

A battery monitor is a must when installing a system with a battery backup. A monitor will add the ability to check the system and see if the batteries are reaching full charge or not. On cloudy days checking the monitor will tell if conservation measures need to be implemented. A monitor will also give the information needed to determine whether a larger array is needed or a larger battery bank.

Charging batteries with an

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Alternative Power Systems Inc.

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inverter require different settings than a solar charging source. If a generator is used to charge the batteries not only does bulk and float become important, but absorption time also. Having a large enough generator to use the full capacity of the charger is a must.

Under sizing the generator will result in longer run times. It will take longer to charge the batteries.

Generators come with information for derating the generator. Elevation and heat are key when sizing a generator.

With most off-grid inverters a remote start feature is available. This takes the guess work out of when the generator needs to start. Automation is a good thing. Quite times can be set and generator exercise period are available.

Keep in mind when working around a battery bank that there is a lot of energy stored. DC power is like an arc welder. Special rated breakers and fuses

are a must when dealing with DC voltage.

Maintenance is critical for a battery bank. Be sure to check the water level in wet cell batteries. Always use distilled water. Greasing the connections will keep the corrosion down. At least once a year check connections for looseness and wires for corrosion. Change cables when necessary and keep the tops of the batteries clean. Dirty batteries can bleed voltage from terminal to terminal. The small things add up to an inefficient system.

Some day the old wet cell battery will be obsolete. Some of the new things coming are sodium batteries and super capacitors. Capacitors would have a very long life and could increase the capacity of storage significantly. Can't wait!

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