ALTERNATE ENERGY SOLUTIONS INC.
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Choose the right batteries...

Batteries are the reservoir of power in an alternate energy system. The right battery choice is important to ensure your power system performs properly, and that system life is maximized. We recommend deep-cycle batteries for all alternate energy power systems. Quality industrial batteries offer longer life and better protection from abuse than low cost automotive batteries. If your budget is tight, select the deep-cycle 6 V batteries - they are economical yet offer good cycle performance. If you have a larger system and want years of worry-free performance, use our Solar Series batteries - they are high capacity and offer excellent cycle life. Batteries are the reservoir in a solar electric system. The right choice of batteries is important to ensure your power system performs properly and to maximize battery life.

Deep-cycle batteries...

True deep-cycle batteries are designed to tolerate repeated cycles of heavy discharge and recharge without damage. Shallow-cycle batteries such as automotive or truck starting batteries are designed for cranking, but will not handle repeated deep discharges and are not suitable for cycling applications.

Sizing your battery bank...

The size of your ideal battery bank depends on your loads and the charging system. Deep-cycle batteries are like any other batteries - the less they work, the longer they will last. So a bigger bank not only gives you a larger reservoir, but also offers longer battery life.

Typical installations have a balance of 100 amp hours of battery capacity per 3 amps of solar panel current. An inverter/generator system will have a battery bank that may run the whole house for up to 3 days without recharging. In the long run, the general rule is to choose the largest, best quality bank you can afford.

Signs of battery aging...

- Rapid voltage rise when charging - charger shuts down early
- Rapid voltage drop under light loads.
- Specific gravity varies between cells by 50 points or more

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• Cell to cell voltage variations of 0.05 - 0.1 V.
• Increased water consumption

Battery maintenance tips...

• If kept charged, a battery will give more years of service
• Inspect batteries every three months, add distilled water as needed and equalize (Flooded/AGM batteries only, but check with the manufacturer for the charge rate)
• Clean posts and remove acid residue
• Don't overcharge - use a charge controller with solar, wind & hydro
• Protect against total discharge - use low voltage disconnects
• Don't let batteries freeze, keep them warm and charged!

How full are my batteries?

Battery state-of-charge can be estimated by accurately measuring the resting voltage when all chargers and load circuits are temporarily turned off. Use a good quality voltmeter. A hydrometer is even more accurate, but don't forget to correct for temperature.

There are 3 main types of batteries

Flooded

Flooded cell batteries have two sets of lead plates coated with chemicals completely immersed in a liquid electrolyte. As the battery is used the water in the electrolyte evaporates and needs to be replenished with distilled water when necessary.

Gel

In Gel cell batteries the electrolyte is suspended in a gelatin type material so that it will not spill even if the battery is operated on its side. Gel cells are often called recombinant batteries because oxygen gas given off at the positive plate is recombined with hydrogen given off at the negative plate to keep the electrolyte moist. This also means that no distilled water needs to be added.

AGM

Absorbed Glass Mat (AGM) batteries have a highly porous micro fibre spongelike glass mat between the plates to absorb the electrolyte and have no free liquid. Similar to gel cells they are sealed and use recombinant gas effects so they don't lose liquid during use.