Different lithium ion battery chemistries



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Lithium-ion battery chemistry overview

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Lithium-ion batteries are the most popular products used for solar electricity storage today. Within the umbrella category of lithium-ion batteries, battery manufacturers employ several specific chemistries in their products. These chemistries each have their own advantages and disadvantages, as well as ideal use cases.

To understand the main differences between lithium-ion battery chemistries, there are two key terms to keep in mind:

A battery"s energy density is closely related to its total capacity - it measures the amount of electricity in Watt-hours (Wh) contained in a battery relative to its weight in kilograms (kg).

In contrast, power measures a battery's ability to output electrical current. Power is rated in kilowatts (kW) and determines how many appliances can run on a single battery system.

Here"s a quick example: batteries for cell phones will typically have high energy density and relatively low power. This is because using a phone doesn"t take a significant amount of power at any given time, but there is a need to pack as much storage capacity as possible into a slim phone battery. Often, low power comes with higher energy density, and the reverse applies as well.

There are several types of lithium-ion batteries both available and in development. We"ve outlined some common chemistries below, including their benefits, drawbacks, and how they stack up relative to one

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