

Batteries help reduce emissions, but how do we reduce their emissions?

The first order of business for the energy transition is electrifying applications like vehicles and heating and making sure that the electricity that powers them is made using renewables. But once the dominant slices of the emissions pie have shrunk, other categories with less potential to reduce emissions become important.

A new study led by Haiwei Zhou at the University of Melbourne focused on the emissions associated with making lithium-ion batteries, which many parts of the energy transition rely on. Those emissions aren't zero, so as we use more and more batteries, that number will grow. Right now, the researchers estimate that these emissions only account for 0.18 percent of annual greenhouse gas releases, but they could increase by a factor of 10 or more by 2050.

Avoiding production

There are a number of ways to reduce the emissions required to make a battery. Some elements used in various lithium-ion battery chemistries are more energy-intensive to mine and refine than others. The battery manufacturing process involves many steps that could be made more energy-efficient. And then there's recycling, which can put battery materials back into the loop while requiring much less energy than mining.

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