

# The latest battery materials in new energy

Could a new lithium-ion battery make electric cars more sustainable?

MIT researchers have now designed a battery material that could offer a more sustainable way to power electric cars. The new lithium-ion battery includes a cathode based on organic materials, instead of cobalt or nickel (another metal often used in lithium-ion batteries).

What are alternative batteries?

In addition, alternative batteries are being developed that reduce reliance on rare earth metals. These include solid-state batteries that replace the Li-Ion battery's liquid electrolyte with a solid electrolyte, resulting in a more efficient and safer battery.

Could solid-state electrolyte make EV batteries less flammable?

They discovered a new kind of solid-state electrolyte, the kind of material that could lead to a battery that's less likely to burst into flames than today's lithium-ion batteries. It also uses less lithium, which is getting harder to come by as demand soars for rechargeable EV batteries.

How will lithium-ion batteries change the world?

It is also expected that demand for lithium-ion batteries will increase up to tenfold by 2030, according to the US Department for Energy, so manufacturers are constantly building battery plants to keep up. Lithium mining can be controversial as it can take several years to develop and has a considerable impact on the environment.

Are lithium and other key metals shaping the future of battery technology?

Lithium and other key metals are shaping the future of battery technology. This article is from The Spark, MIT Technology Review's weekly climate newsletter. To receive it in your inbox every Wednesday, sign up here. I was chatting with a group recently about which technology is the most crucial one to address climate change.

Will a new battery chemistry boost EV production?

Expect new battery chemistries for electric vehicles and a manufacturing boost thanks to government funding this year. BMW plans to invest \$1.7 billion in their new factory in South Carolina to produce EVs and their batteries. AP Photo/Sean Rayford Every year the world runs more and more on batteries.

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As the need for the metal ramps up and the demand for EVs rises, the world could face a shortage of the material as soon as 2025, according to the International Energy Agency.

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Energy density runs about 30 to 60 percent less than prevalent nickel-manganese-cobalt chemistries, but it's safer, and abundantly available materials improve both ...

The emergence of high-entropy materials has inspired the exploration of novel materials in diverse technologies. In electrochemical energy storage, high-entropy design has ...

In the midst of the soaring demand for EVs and renewable power and an explosion in battery development, one thing is certain: batteries will play a key role in the ...

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Battery technology has emerged as a critical component in the new energy transition. As the world seeks more sustainable energy solutions, advancements in battery technology are ...

In general, energy density is a key component in battery development, and scientists are constantly developing new methods and technologies to make existing batteries more energy ...

"Going forward, evaluating new battery chemistries and designs with realistic demand profiles will be really important," said energy science and engineering postdoctoral ...

So what's new with battery materials? This probably isn't news to you, but EV sales are growing quickly--they made up 14% of global new vehicle sales in 2022 and will reach 18% in 2023 ...

"Our research explains one possible underlying mechanism of the process and provides a pathway to identify new materials for battery design." The research is co-authored ...

Add up the growing demand for EVs, a rising battery capacity around the world, and toss in the role that batteries could play for storage on the grid, and it becomes clear that ...

Battery 2030+ is the "European large-scale research initiative for future battery technologies" with an

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approach focusing on the most critical steps that can enable the acceleration of the findings of new materials and battery concepts, the ...

In other words, even when the linked program is not consuming any energy, the battery, nevertheless, loses energy. The outside temperature, the battery's level of charge, the ...

Researchers from the Harvard John A. Paulson School of Engineering and ...

Solid-state batteries are a game-changer in the world of energy storage, offering enhanced safety, energy density, and overall performance when compared to traditional ...

The race is on to generate new technologies to ready the battery industry for the transition toward a future with more renewable energy. In this competitive landscape, it's hard ...

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