



# Castries battery recycling

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Xin Li, a research and development associate, works at Ascend Elements in Westborough, Mass., on June 13. The company is one of several that are scrambling to build recycling plants that can recover minerals from electric vehicle batteries without using dirty techniques like burning them -- or wasting energy by shipping them overseas. Amanda Andrade-Rhoades for NPR hide caption

WESTBOROUGH, Mass. -- Plastic bags of dark powder sit on a metal shelf. The powder contains minerals that came from lithium-ion batteries and are destined to be made into batteries again. That, in itself, is not revolutionary.

But where this shelf is located -- in an unassuming industrial park an hour west of Boston -- symbolizes how the battery-recycling industry is on the cusp of change.

Today, key steps in the battery-recycling process mostly happen overseas, particularly in Asia. Companies there have spent years building up a battery supply chain in which recycling and building batteries are closely connected.

But more and more batteries spend their lives powering electric vehicles in the United States. Shipping minerals halfway around the world costs money, creates carbon emissions, adds supply chain risks and, from the U.S. perspective, pushes some jobs and profits overseas.

That's why the U.S. government is pouring money into an effort to bring the whole battery-recycling ecosystem to the United States. Meanwhile, automakers and battery companies, as they build new battery and EV plants across North America, want recycling close by; they'll have a lot of batteries to scrap in the years ahead as electric vehicle sales rise.

These minerals in their 25-pound plastic bags, recycled by a company called Ascend Elements, epitomize the new geography of battery recycling. They were ground up in Georgia, processed in Massachusetts and headed to Michigan for manufacturing -- every step happening in the United States.

Lithium-ion batteries are hazardous waste if they're discarded, but they're a valuable resource if they're recycled.

Because they're hazardous, some states legally require battery recycling. And because they're valuable, EV batteries are often recycled even where it's not mandated: Vehicle dismantlers can sell the batteries for money.

But how does it work? Step 1 is safely collecting batteries, discharging them and then disassembling and shredding them. The result is a black powder that's called "black mass" in the battery-recycling industry. This



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happens at locations scattered across the U.S., including at an Ascend Elements facility in Georgia.

Chemical operator Pedro Servones works on a tank at Ascend Elements on June 13. Amanda Andrade-Rhoades for NPR hide caption

Brian Gaulin picks up a scoop of "black mass," the material left after batteries are shredded and sifted, at Ascend Elements on June 13. Amanda Andrade-Rhoades for NPR hide caption

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