

Why electric car batteries may go round and round again

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📹 Electric car makers are developing ways to recycle vehicle batteries in Australia. (Bianca De Marchi/AAP PHOTOS)

By 2030, more than 1.7 million electric vehicles are expected to be roaming Australian roads, each fuelled by a powerful lithium-ion battery.

Many of those batteries are guaranteed by their manufacturers to work for more than eight years and, based on existing electric cars, will keep wheels turning for many more years to come.

But what happens when these power sources finally wear out?

It's an issue being considered by automakers, Australian regulators and recycling firms which want to see the devices reused to keep household lights on, to power other electrics, and to be broken down and used to fuel more cars.

Experts say planning needs to begin immediately if Australia is to tackle battery recycling en masse and avoid an environmental mess.

Recycling electric car batteries was a challenge Samantha Johnson, managing director of Polestar Australia, said the company was already facing in low numbers.

"If an accident happens and a battery comes back, we have the facilities to repurpose those batteries now, to take what we can out of those batteries and a company we're using has been doing that for years," she said.

"No one wants to see batteries going into landfill."

The car brand uses Victorian firm EcoBatt to recycle its batteries but Ms Johnson said the company was also pursuing industry-wide standards to ensure more could and would be recycled in future.

Polestar had raised the issue with other manufacturers, government bodies and the Battery Stewardship Council, she said, to ensure the power sources could be reused or their minerals extracted, and that the process would take place in Australia rather than being shipped overseas.

"This is what the government and industry groups are working on at the moment - a certification process or standards that make sure (recycling) does happen," she said.

"We can't just have a loose industry where batteries come back and it goes into this yard or that yard and can end up in 10 different places.

"There has to be regulation, there have to be standards ... they have to be recirculated back into manufacturing, back into workshops, back into other goods, we have to make sure that does happen."

Battery Stewardship Council chief executive Libby Chapman said the journey towards an industry standard took another step forward this month when the group, along with the Motor Trades Association and Federal Chamber of Automotive Industries, created a joint discussion paper on electric vehicle battery recycling.

The document, which seeks to identify hurdles and solutions, will be released to industry bodies next week.

"It is important that we prepare early for this," Ms Chapman said.

"We don't want to move in the same way that solar panels have where people haven't taken action early and we've ended up with a fairly serious and large waste problem.

"When we're thinking about electric vehicle batteries, unlike solar panels, they also have inherent fire risks and we cannot afford to have stockpiles of them in an uncontrolled manner."

But Ms Chapman said Australia was in a good position to be able to recycle electric vehicle batteries, with "significant investment" already in the field and three firms in Victoria and NSW able to process battery elements.

"A lot of electric vehicles, when you get down to the cell level they're very similar to any battery. It is possible to process them with existing recycling facilities," she said.

"There is a need for investment in new facilities and building the capacity to meet that (extra) demand."

Future Smart Strategies managing director Professor Ray Wills said the process could also be made easier for recycling firms if car makers adopted smarter designs that made metals easier to extract.

Lithium, the metal most commonly used in electric vehicle batteries, was highly recyclable, he said, and it would be "cheaper to reuse lithium" than mine for more.

"We need smart design," Prof Wills said. "Batteries need to be designed not only to be used and to be useful but to be taken apart."

"When we talk about sustainability, we talk about cradle to cradle, where we go past the grave and rebirth the materials and reutilise the materials in different ways."

A good example of evolving battery design, he said, could be taken from consumer tech giant Apple, which used a robot to break down iPhone batteries and extract 13 components to be reused in other products.

Also making electric batteries more sustainable, Prof Wills said, was their changing composition.

Electric car manufacturers were starting to deploy lithium-ion phosphate batteries that did not use cobalt - a rare and expensive element.

Ms Johnson said the make-up of electric vehicle batteries would continue to evolve to make them more sustainable as well as recyclable.

"What's in them now is going to be different to what's in them in two years' time and five years' time," she said.

"We're reworking with Volvo and other partners to follow the battery technology and see how we can use less of the risk minerals."

In addition to recycling, Deloitte energy, climate and circular economy director Dr Alina Dini said it would also be possible to redeploy electric car batteries.

Batteries considered too old to be used in electric cars often had "80 per cent of usable capability," she said, and could be used to store renewable electricity and power homes, for example.

"That battery can actually have another purpose ... to support stationary storage in the grid," she said.

"Rather than buying a Tesla Powerwall for your home, you might be able to buy an old EV battery and place that in your home to provide storage."

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