



Audi and Umicore have successfully completed phase one of their strategic research cooperation for battery recycling. The two partners are developing a closed loop for components of high-voltage batteries that can be used again and again.

Audi and BMW team up with Umicore on EV battery recycling

By **Jessica Twentyman** - October 29, 2018



As early-generation electric vehicles (EVs) start to retire from active service, plans for recycling components and materials from their batteries are starting to take shape, as Jessica Twentyman reports.

Automotive company Audi has [announced](#) that it has successfully completed the first phase of a collaboration focused on recycling batteries from electric vehicles (EVs), alongside its partner Umicore, a Belgian materials technology and recycling specialist.

In a project that began in June this year, the two partners have been developing a 'closed loop' for components of high-voltage batteries that can be used again and again. Those materials that are of particularly high value in EV batteries could, in time, be added to a raw materials 'bank'.

This is important work. With batteries from the earliest models of electric and hybrid vehicles now hitting retirement age, finding ways to reuse their components and materials is becoming more urgent.

The global stockpile of EV batteries is forecast to exceed around 3.4 million battery packs by 2025, compared with around 55,000 this year, according to data from Bloomberg NEF.

✉ Read more: [Ricardo and partners get major UK EV battery tech project underway](#)

Cobalt, nickel and copper

Even before the start of this project, Audi executives said that they had analysed the batteries found in the company's A3 e-tron plug-in hybrid models, in order to define better ways of recycling them. Since then, they've worked with materials technology experts from Umicore to determine possible recycling rates for battery materials, such as

cobalt, nickel, and copper.

The partners say that, in laboratory tests, they found that more than 95 percent of these elements can be recovered and reused.

The partners are now working together on developing specific recycling concepts, with a focus on the 'closed loop' approach. What this means in practice is that valuable elements from batteries flow into new products at the end of their use in older ones.

Key insights they need from their work include establishing the purity of recovered materials, setting recycling rates, and working out the economic feasibility of the raw-materials 'bank' concept.

"We want to be a pioneer and to promote recycling processes. This is also an element of our programme to reduce CO2 emissions in procurement," said Bernd Martens, a member of the board of management for procurement and IT at Audi AG.

✉ Read more: [Zero Emissions: UK launches £25m competition for green battery tech](#)

Partnering widely

This is not the only automotive industry tie-up for Umicore.

Earlier this month, the company [announced](#) it was working with BMW and Swedish battery specialist Northvolt on a similar project, which also focuses on a closed-loop approach for EV battery recycling.

As an official statement from BMW puts it: “This starts with a recyclable cell design and continues with a manufacturing process that mostly uses renewable energy.

“The next step is a long period of primary use as a drive battery, possibly followed by another phase of secondary use as a stationary energy storage device. At the end of its lifecycle, the cell is recycled and the raw materials reused, thereby completing the loop.”

According to BMW executives, the BMW Group will inaugurate a new battery cell centre of excellence in Munich in summer 2019.

“Besides battery cell development, other key skills will be pooled there, too, from the production of battery cell prototypes to build-to-print expertise. This is important for the BMW Group as a way of endowing potential suppliers for cell production with the necessary skills to meet its own requirements,” they said.

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Internet of Business says

All this is good news for Umicore. Back in August, the company’s CEO Marc Grynberg unveiled big investment plans aimed at the EV battery recycling market.

According to a [report](#) from Reuters, he told a media briefing: “We are preparing to make investment choices and decisions in the first part of the next decade, because we will have to be ready with larger

industrial-scale recycling facilities than we have today, sometime around the mid-2020s.

“Today we have capacity of about 7,000 tonnes of spent batteries... that would correspond to the recycling of about 150,000-200,000 EV batteries,” he said.

“If you make assumptions about what the market may be 10 years down the road, knowing that this year probably more than two million EVs and plug-in EVs will be sold, then you have an idea about the scaling-up factor that will be required.”

✉ Read more: [Business Secretary Greg Clark MP announces new national battery facility for UK](#)



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Jessica Twentyman is a journalist with a 20-year track record as both a writer and editor on national newspapers and IT trade titles. Her work focuses on how smart companies use technology to achieve real business results. She is a contributor to the Financial Times, The Economist and Computer Weekly, and Consulting Editor on Diginomica.com and I-CIO.com.

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