

New project on sustainable batteries for electric vehicles led by Catalan researchers

- Improving current battery technology is necessary for the mass implementation of electric vehicles
- The materials used will avoid scarce and toxic elements, reducing the cost and improving the sustainability of the batteries
- An intelligent battery communication system will enable battery management, increasing battery life and safety

Barcelona, February 9, 2020. The [Catalonia Institute for Energy Research \(IREC\)](#) is coordinating a very ambitious European project to develop innovative lithium batteries. The main objective of the COBRA project is to design cobalt-free batteries that overcome the current technology's main limitations in terms of lifetime and capacity. The device will incorporate improvements to its components using new materials for energy storage, as well as the use of intelligent sensors and technologies that enhance energy efficiency. It is expected, then, to lower the cost and reduce negative environmental impact during the life cycle of these new generation batteries.

Road transport is the largest known generator of CO₂, accounting for almost 30% of emissions in Europe today, with almost half of this coming from vehicle use. Electric mobility is key to the decarbonisation of the sector. The mass implementation of electric vehicles in our cities will only be possible if various aspects of current batteries are improved. The use of scarce and toxic elements, such as cobalt, presents important limitations both for the large-scale production of batteries and for the ethical conflicts implicit in their scarcity and high value.

"Not only are we considering the technological and economic barriers of electric vehicle batteries, we're considering social and environmental aspects, even more so due to the climate emergency we are currently experiencing" explains Dr. Jordi Jacas, coordinator of the COBRA project at IREC.

The project incorporates environmental impact studies, which ensure that the carbon footprint of the end product is reduced. In this new generation of batteries, the metal parts of the components will have a recyclability of more than 95%, and green or recycled materials will be used, entirely replacing cobalt and other toxic or scarce elements. In addition, the integration of sensors and an advanced management system will reduce

environmental impact and increase their 'useful life' (the amount of charging and discharging cycles a battery can go through before its capacity degrades significantly).

"The incorporation of intelligence in the batteries will not only improve their behaviour, but also reduce the cost and increase the safety of the device", says Dr. Lluís Trilla, principal researcher in power systems management at IREC.

Barcelona-based innovation consultancy Bax & Company are focused on maximising COBRA's impact in several areas; scientific advancements in battery-related research, battery-related initiatives, European policies and the commercialisation and business activity of Li-ion batteries.

"The objectives and activities of COBRA are in line with Europe's strategic goals of developing the next generation of high-performing, sustainable batteries made in Europe", says Marcos Ierides, materials expert at [Bax & Company](#).

The success at the end of the project will be materialised with a fully functional electric vehicle battery that incorporates all the innovations developed during COBRA. The structure will be made of advanced materials that allow the replacement of steel, resulting in a lighter product that is more resistant to impact and fire. The new batteries will be tested under homologated electric vehicle conditions for potential commercialisation in the near future.

COBRA project

The COBRA project has a budget of almost 12 million euros over 4 years, with the participation of 19 European partners from 9 different countries. The consortium brings together the most important European centres working in the battery sector. It includes universities, research and technological entities, small companies and large corporations covering the whole value chain, actively involving the European battery industry.

The first meeting of the whole consortium was held on January 16th and 17th 2020, the official start of the project. COBRA is a project funded by the European Union's Horizon 2020 research and innovation programme.

More information

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