

Motivation and Objectives

Electric Vehicles symbolize the future of sustainable road transport.

Yet the path towards truly mass-scale production of large lithium-ion batteries as necessary for electric vehicles is confronted with several serious challenges : cost, quality, environment, process scale-up, ...

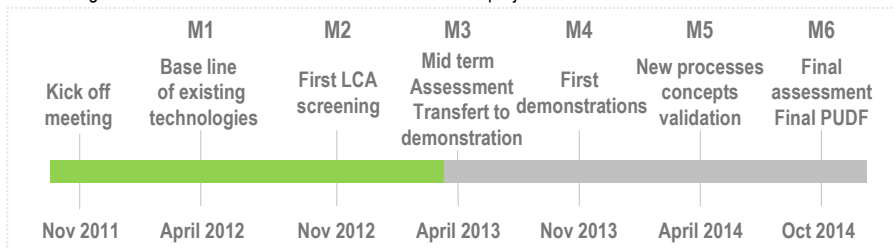
Moreover, Europe faces strong competition from Asia and the USA where more investments and production capacities for Li-ion batteries currently exist.

In this competitive context, the ELIBAMA project aims at enhancing and accelerating the creation of a strong European automotive battery industry structured around industrial companies already committed to mass production of Li-ion cells and batteries for EVs.

The ELIBAMA project will exploit advanced eco-design methods of manufacturing automotive batteries in order to guarantee drastic cost reductions and significantly enhanced environment-friendliness across the value chain of the battery production.

Project Plan, Milestones and Deliverables

The figure below summarises the main milestones of the project.



Technical Approach

The project is structured in technical bricks addressing the different batteries manufacturing steps:

- Development of cost-effective and eco-friendly processes for the coating of electrodes.
- Development of electrolyte materials eco-friendly production as well as improved electrolyte filling processes.
- Improvement of battery cell design and assembly processes (stacking, joining, ...).
- Development of new technologies and processes to improve downstream quality and reduce the rate of defective products at the end of the manufacturing chain.
- Optimization of batteries refurbishment and recycling.
- New proposal for second life applications.
- Life-cycle-assessment (LCA) studies to minimize manufacturing environmental impacts.

Achievements

- WP1 • Development at lab scale of different NMP-solvent free electrodes coating processes (aqueous based, dry-coating, extrusion, ...).
- WP2 • Improvement of TFSILi electrolyte production, filling and recycling.
• Development at lab scale of innovative stacking and joining techniques.
• Development at lab scale of structured electrodes collector foils to speed up electrolyte filling.
- WP3 • Process cleanliness control in battery cells manufacturing.
• Development of a Non-Destructive Test for Li-ion cells.
- WP4 • Demonstration activities at pilot level of manufacturing processes developed in WP1, 2 and 3.
- WP5 • Integrated environmental assessment of the different technologies / Eco-design.
- WP6 • High efficiency batteries recycling process development.
• Adequacy of the electrochemical performances of used batteries after ageing with 2d life markets.



Organisational Information



Budget	15.4 M€	Funding	9.0 M€
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DG / Unit	Research & Innovation / G.2	Contract n°	GC.SST.2011.7-7
Coordinator	Jérôme PEYRARD, Renault (jerome.peyrard@renault.com)		
Main Partners:	17 partners, among them Daimler, Fraunhofer, Renault, Saft, ...		
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