The Electric Vehicle revOLUTION enabled by advanced materials highly hybridized into lightweight components for easy integration and dismantling providing a reduced life cycle cost logic

Fact Sheet

Project Information

EVOLUTION
Grant agreement ID: 314744
Status
Closed project
Start date 1 November 2012
End date 31 October 2016
Funded under
FP7-NMP
Overall budget € 13 438 488,67
EU contribution € 8 933 842
Coordinated by
AALBORG UNIVERSITET
Denmark

Objective

Hybrid-EVs and Full-EVs on the market are products where the Internal-Combustion-Engine (ICE) is supplemented by an electric-motor (HEV) or replaced by an all-electric power-train (FEV). Neither approach address lightweight or modularity inheriting the same disadvantages as conventional ICEV - Electrification of mobility must face a conceptual rEVOLUTION! This project breaks the paradigm of current Body-in-White (BiW) by delegating the whole structural function to a novel BiW archetype made up of a central cell, including Multifunctional-Rolling-Chassis (MRC) enabled by a new generation of highly-hybridized structural components and complemented by a severe-crash-dimensioned front end plus a modular rear end. This concept will be the common basis for a family of user friendly vehicles differing by changing only the rear end according to the customer demand. Advanced
by changing only the rear end according to the customer demand. Advanced materials will enable the development of novel super-lightweight hybrid components complying with safety standards and recycling constraints, and enable the design of the innovative MRC for FEV leading to a further weight reduction of 40% over that achieved using the current state of the art in the SuperLIGHT-CAR project. The EVolution goal is to demonstrate the sustainable production of a 600 kg weight FEV by the end of 2015. To this end EVolution addresses the whole vehicle by prototyping, assembling, and disassembling, the most representative components (MRC, crash cross-beam, crash box, suspension sub-frame, side-door, A-pillar, and a multifunctional-hard-top) made from raw polymers and aluminum alloys commonly used in the automotive industry, to ensure compliance with EC Directive 2000/53/EC ‘End-of life vehicle’ which imposes stringent requirements on the disposal and recycling of motor vehicles. Guaranteeing the safety and regulatory compliance, with a weight saving of 50%, each component chosen will prove, mutatis mutandis, the revolutionary potential of the EV solution in all components employed today in current high volume production.

Field of science

/social sciences/economics and business/business and management/commerce
/natural sciences/chemical sciences/polymer science
/engineering and technology/environmental engineering/waste management/recycling

Programme(s)

Topic(s)

Call for proposal

FP7-2012-GC-MATERIALS

Funding Scheme

CP-IP - Large-scale integrating project

Coordinator

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THE UNIVERSITY OF SHEFFIELD

United Kingdom
EU contribution
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FUNDACION CIDAUT
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EU contribution
€ 716,081.50
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**Record number:** 105656

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