

Press Release

Toulouse, 8 July 2021

On 5 July 2021, the POWER2024 project was selected as part of CORAM: Steering Committee for Automotive and Mobility Research.

The POWER2024 project provides a technological and economical solution for lowering the barriers to heavy vehicle electrification. The aim of the project is to use the “lean approach” to electrify every heavy vehicle for its specific professional use, by providing innovative solutions to manage on-board electric power for Battery Electric Vehicles (BEVs) or Fuel Cell Electric Vehicles (FCEVs), deploying breakthrough technology for battery and power converter architecture. The innovations will also address methods which will allow battery value to be maximised through reuse (second life) on reconditioned vehicles. Power2024 brings together two manufacturers in the Occitanie region: ACTIA, the project promoter, and GSR – Groupe Surplus Recyclage – as well as the CEA.

A specific and design-critical challenge: electrification of heavy vehicles.

Heavy vehicles are a key market for addressing issues of decarbonisation and therefore reducing greenhouse gas emissions, minimising energy dependence and improving air quality, particularly in urban areas. It is a market with a strong duty to set an example, particularly on the part of public authorities and companies.

To date, the various players - global automotive manufacturers, suppliers of identical cells and mega-equipment manufacturers in search of volume - are unable to handle all of the constraints of electrification of heavy-vehicle on-board systems in their professional use. This market covers a wide range of applications and the constraints of electrification are specific, whether they are technical, economic or related to the life cycle.

Although standardisation applied to light vehicles leads to technological advances, it does not mean it can be directly transposed to the heavy vehicle market. Additional innovation is required in order to appropriately address the expectations of this market.

The POWER2024 innovation covers the various elements of the electrification system.

The proposed innovations, as part of the POWER2024 project, make it possible to flexibly and cost-effectively address the range of professional applications for heavy vehicles, through the development of multi-scale, multi-application, modular and miniaturised technology.

They also provide significant benefits with regard to:

- Increasing vehicle range and lifespan
- Improving battery reliability and safety and therefore vehicle service rates
- Algorithmic optimisation for on-board power management and storage
- Battery reconditioning, which will be designed with a view to environmental performance over the whole life cycle.

ACTIA, Groupe Surplus Recyclage and the CEA have teamed up in a technological and industrial partnership.

ACTIA, the project promoter, is a group specialising in the design and industrialisation of on-board electronic architectures and systems for connected, safe and sustainable mobility.

For this project, ACTIA will draw on its “Electromobility” sector and its experience in bus and commercial and industrial vehicle electrification, and will provide the support of its skills centres for on-board electronics and software, its industrial know-how and its knowledge of the mobility market.

As part of POWER2024, ACTIA's involvement will cover the development, in collaboration with the other members of the consortium, of:

- “Cell-to-pack” battery system
- Multi-level and multi-application miniaturised power conversion module
- “On-board” power optimisation algorithms and their approval on hydrogen hybrid and fully battery-powered buses

Groupe Surplus Recyclage is a small/medium-sized business, and a forerunner in the industrial transformation of the recycling business. It offers material recycling, and production and distribution of reconditioned parts from the circular economy.

As part of POWER2024, GSR will speed up its industrial research work in order to add heavy-vehicle specialisation to its specialisation in private and two-wheeled vehicles. Its areas of involvement will cover:

- Disassembly, repurposing and safe reconditioning of batteries as well as scaling of related industrial resources
- Identification of repurposing opportunities (e.g. reconditioning PRE after battery capacity check, reconditioning to reuse for static energy storage, complex reconditioning with repair and reprogramming of BMS, hybridisation, recycling raw materials, etc.).

The **CEA** has more than 20 years’ experience in Li-ion batteries through the CEA-Liten and 50 years’ experience in semi-conductors. It has a significant portfolio of patents, developed in contact with multiple applications, enabling obvious transfers of technology to the field of heavy-vehicle electromobility. As part of the Power2024 project, the CEA’s work will primarily focus on:

- Defining an optimal architecture, simulation and systems modelling,
- Diagnostics and validation of the eco-efficiency of solutions for manufacture, use and at the end of life,
- Developing, in collaboration, a multi-application modular inverter.

In addition to these priority areas, the CEA will offer its technological expertise in various phases, for example with modelling tools and its modularity expertise in designing battery packs and storage systems, the state-of-the-art in the field of energy transfers and conversion.

The POWER2024 project, creating value with a strong societal and environmental aspect.

The POWER2024 project, which is driven by innovations creating lasting competitive advantages and by strong national and regional roots, will help to increase the sector’s competitiveness, to develop an industrial presence for the future in the Occitanie region and to create employment. It is consistent with green mobility, concerned with its impact on the whole ecosystem.

Power 2024 has the support of the PFA – Filière Automobile et Mobilités, and the Occitanie region. The companies Bacqueyrisses, specialising in buses and coaches, and Agreenculture, invested in application development and robotic vehicles for agriculture, will support the POWER2024 project in the on-board testing phases.



About:

ACTIA

ACTIA is a family-owned and independent intermediate-sized company that was founded in 1986. It is an international Group with its head office located in Toulouse in the south of France. ACTIA designs, manufactures and operates electronics for system management in the highly demanding automotive, rail, aeronautics, space, defence, energy, and telecommunications sectors. ACTIA's commitments are reflected in the Group's ambitious work on key issues affecting the world today, such as mobility, connectivity, safety, and the environment. www.actia.com

Key figures:

2020 Consolidated Turnover: €438.6 million

More than 3,720 employees worldwide

24 companies in 16 countries

14 to 17% of turnover invested in R&D each year

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GROUPE SURPLUS RECYCLAGE

Groupe Surplus Recyclage is an intermediate-sized company that was founded in 2005 by Laurent Hérail. This organisation, located in France in an area of regional interest in Gaillac near Toulouse, is a forerunner in industrial transformation of the recycling business for any vehicle or land-based rolling stock and their components. This stakeholder is therefore involved in materials recycling as well as producing and distributing reconditioned parts. The aim of the Group's primary activity is to address the requirements of sustainable development, consistent with circular economy principles. Through its ambitious developments, Groupe Surplus Recyclage aims to relocate the industry to France and therefore address environmental, economic and social challenges. www.groupesurplus.com

Key figures:

2020 Turnover: €23 million

More than 140 employees in France

7 companies in France

More than €1.5 million invested in R&D.

CEA

The CEA is a major player in research, working for the State, the economy and citizens. It offers practical solutions to their needs in four key areas: energy transition, digital transition, technologies for future medicine, defence and security.

As the only French public research body in the top 100 innovation players worldwide (Derwent 2018-19), the CEA acts as an innovation catalyst and accelerator for the French industry. It improves competitiveness for companies in all sectors by creating high-performance products that give a competitive edge, and offers innovative solutions to shed light on developments in our society. The CEA deploys this approach in all regions of France by supporting its local partners in their drive for innovation, helping to create value and lasting employment within the region, matching industrial needs as much as possible. At the same time, it supports the development of its 220 startups, which are agile channels for transferring know-how and breakthrough technology from laboratories. www.cea.fr