COLLABAT

WEBINAR

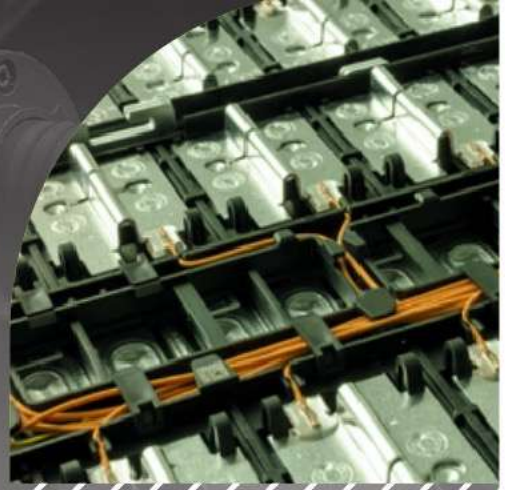
TESTING AND VALIDATION

Methodologies for testing and validation of Electric Vehicles' batteries

29 NOV

From 10:00 to 12:00 CET

REGISTER NOW



Today's agenda

10.00 – *Welcome & introduction*
Eduard Piqueras, *MARBEL Coordinator*, **Eurecat**

10.10 – COLLABAT Cluster main developments & innovations on battery testing and validation

- **Aging, performance and safety – developed test procedures, gained test results and the way of reporting them in LIBERTY**
  - Christoph Breitfuß –**Virtual Vehicle Research, LIBERTY**
  - Nick De Bie – **Flanders Make, LIBERTY**

- **Cell testing in HELIOS for parameterization of digital twins**
  - Carlos Ziebert – **KIT, HELIOS**

- **Against all odds: cell testing activities in MARBEL and modelling approaches**
  - Daniel Koch – **THI, MARBEL**

- **ALBATROSS battery testing activities**
  - Chris Allen – **TWI, ALBATROSS**
  - Bjorn van de Ven – **Cleantron, ALBATROSS**

11.00 – PANEL DISCUSSION: "Common points between the different projects and lessons learnt at CLUSTER level"
Moderator: Prof. Dr. Hans-Georg Schweiger, **THI, MARBEL**

11.30 – *Questions & Answers*

11.50 – *Closing*
Eduard Piqueras, *MARBEL Coordinator*, **Eurecat**

COLLABAT OVERVIEW

LC-BAT-10-2020: Next generation and realisation of battery packs for BEV and PHEV

Main goals:

Accelerate the mass market take-up of battery electric vehicles (BEV) and plug-in hybrids (PHEV), by means of:

Increasing the **energy density** of battery packs.

Shortening **charging times** for BEVs through high-power charging.

Enabling travelling over longer distances.

Expected Impact:

Reduced **battery system weight** by **20%**.

25 % shorter recharing time with a 150 kW charger

Extended **useful battery life** to **300 000 km** in real driving.

Min **20% Life Cycle Analysis improvement** compared to existing products.

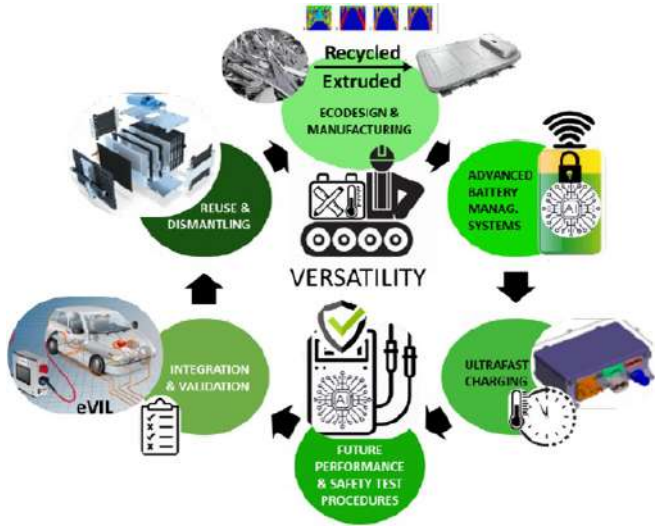
Improved knowledge on module and pack **sensorisation and thermal management**.

Project details

High-performance modular battery packs for sustainable urban electromobility services

Some key-Innovations:

- Hybrid combination of High Energy with High Power cells in one pack.
- Modular & scalable design combining different battery modules & DC/DC.
- Advanced BMS and Multi-Sensor-Unit using wireless communication
- Digital Twin, IoT Cloud based solutions, Fleet management software.
- Ultrafast-charging at 360 kW.
- Validation on a) small city EV car and b) full-size Bozankaya E-Bus.



Manufacturing and Assembly of modular and Reusable EV Battery for Environment-friendly and Lightweight mobility

- Design for **easy and safe (dis-)assembly** automatization.
- Reparability and **2nd life transition**.
- Flexible and advanced **Battery Management System**.
- **Lightweighting** the battery case & **recycled Al** alloys.
- **Ultra-fast charging** strategies and enhanced **thermal management** for an extended useful battery life.
- Performance- and safety-related **test procedures** using AI.

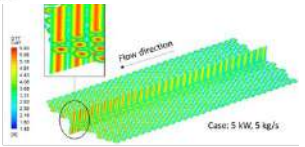
Project details

ALBATROSS

Advanced **L**ight-weight **BAT**te**R**y systems **O**ptimized for fast charging**, S**afety, and **S**econd-life applications

Some Key-Innovations:

- Weight reduction by 20%
- Recharging time, 25% shorter
- Useful battery life enhancement
- Life Cycle Analysis – LCA improvement by 20%
- Sensorisation and thermal management knowledge
- Operational battery pack
- Validation on a BMW i3.



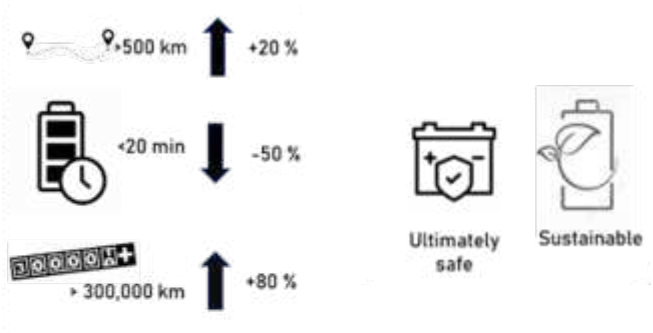
LIBERTY

LIGHTWEIGHT BATTERY SYSTEM FOR EXTENDED RANGE AT IMPROVED SAFETY

Lightweight **B**attery System For **E**xtended **R**ange at Improved Safe**ty**

Some Key-Innovations:

- Cell-to-Pack solution.
- Immersion cooling.
- Enhanced Safety System
- Advanced BMS and SOX algorithms.
- Validation on a Mercedes EQC.



MARBEL

COLLABAT In detail

- 4 main subclusters defined – ¾ already launched:
  - Sub – A: Sustainability
  - **Sub – B: Testing** **Lead by** Technische Hochschule Ingolstadt CARISSMA **Leading testing activities in** MARBEL
  - Sub – C: BMS
  - Sub – D: Modelling
- The main purpose is to engage on technical topics of discussion and identify potential synergies among projects.
- Potentially, we expect to provide specific outcomes valuable to upcoming EU projects, academia, industry etc.
- Our advances will be showcased on dissemination events.
- Potentially generating specific publications (whitepapers, guidelines, journal papers, etc.)

COLLABAT Testing subcluster

SUB-CLUSTER ACTIVITIES

- discuss “state-of-the-art” test procedures and identify drawbacks / problems
- exchange different experiences and viewing angles
- create “lessons-learned”
- identify, discuss and tackle challenges during testing
- data format of test data allowing for eased exchange of information
- “best value for money” for EU commission as well as all the participating projects/partners

Next webinar

REGISTRATION OPEN!

https://cutt.ly/COLLABATLCA

MARBEL: Tackling current and future challenges in the electromobility sector

MARBEL GENERAL OVERVIEW

Manufacturing and assembly of modular and reusable Electric Vehicle battery for environment-friendly and lighweight mobility

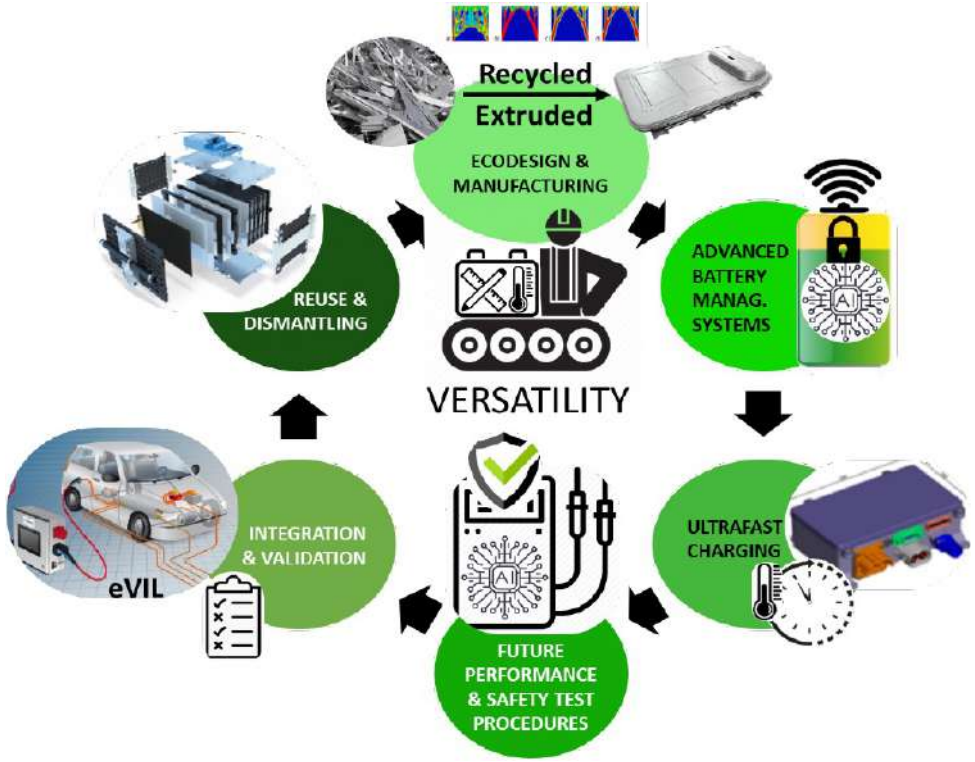
- European project funded under the topic: *LC-BAT-10-2020 – Next generation and realisation of battery packs for BEV and PHEV*
- **3,5 years** duration, from 1/01/2021 to 30/06/2024
- **Budget**: 11,7M€, of which 9,8M€ funded by the EC
- **16 partners** from **7** different **European countries**
- Coordinated by **Eurecat,** RTO
- **Grant agreement ID**: 963540

The MARBEL project

Manufacturing and Assembly of modular and Reusable EV Battery for Environment-friendly and Lightweight mobility

Total budget ~ 12 M€

- > 20% weight reduction
- > 25% charging time reduction
- > 40% LCA improvement by using modularity
- Useful Battery life up to 300,000 km
- Easy & Safe (dis-)assembly automatization
- Reparability and 2nd life transition
- Adaptable to all cells & vehicles



The project is coordinated by EURECAT.

Questions & Answers

MARBEL

Manufacturing and assembly of modular and reusable EV battery for environment-friendly and lightweight mobility

THANK YOU!

A project coordinated by:

eurecat