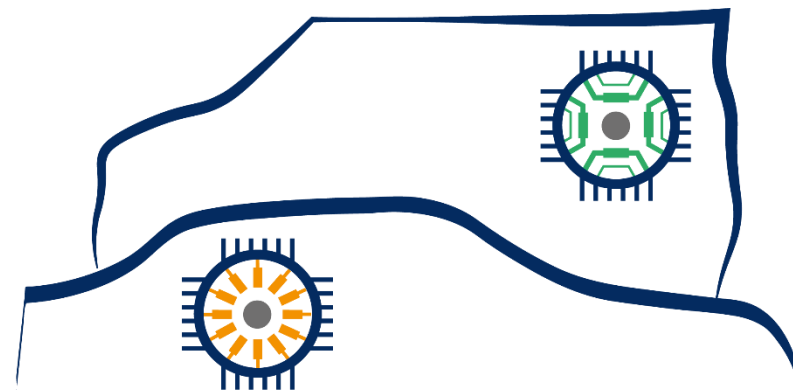
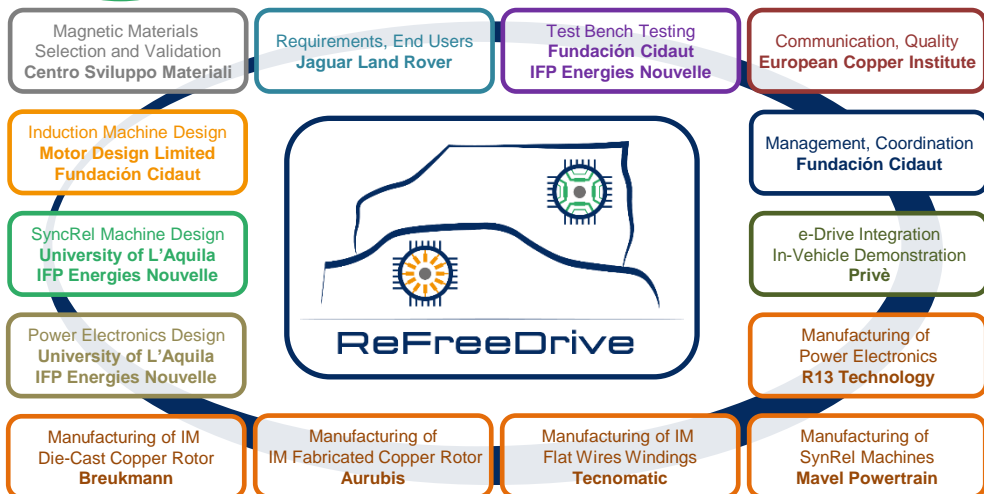


Partners Contributions



ReFreeDrive

Rare Earth Free e-Drives featuring low cost manufacturing

www.refreedrive.eu



Project Data

Title: Rare earth free e-Drives featuring low cost manufacturing

Acronym: ReFreeDrive

Grant Agreement No: 770143

Topic: GV-04-2017

Project Total Costs: 5,999,131.25€

Total EU Contribution: 5,999,131.25€

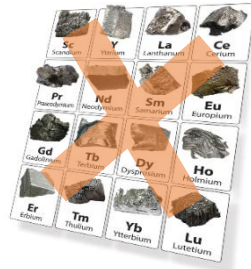
Project Coordinator: Fundación Cidaut

Partners: 13 partners from 6 EU Countries



Project Objective

To develop **rare earth-free traction technologies** beyond their current state-of-art, with a strong focus on industrial feasibility for mass production, targeting lower costs with higher specific torque and power density.

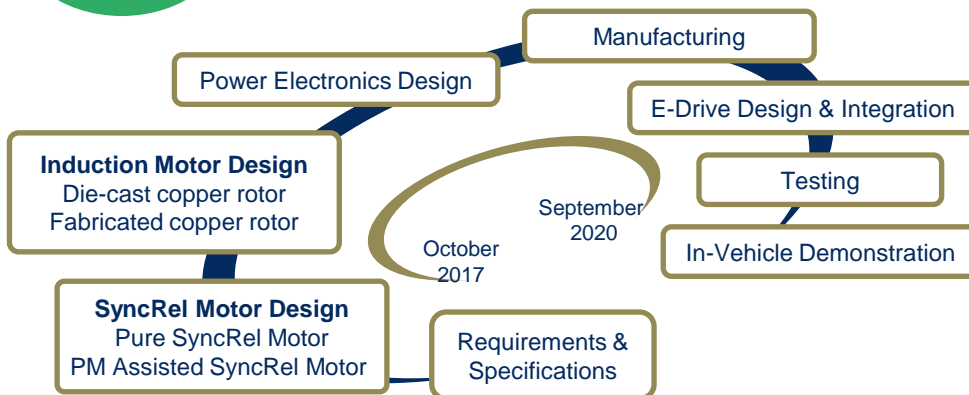


Project Motivations

The increasing demand of full electric vehicles arises specific challenges in terms of design for manufacturing, low weight, material costs and material supply chain.

To this extent the project aims to investigate motor-drive architectures featuring modular electric powertrain components and reduced use of critical raw materials.

Project Timeline



Project Highlights

The project investigates the design of Induction Motors (**IM**) and Synchronous Reluctance Motors (**SyncRel**) (pure and assisted by Rare Earth Free Permanent Magnet) at different levels including electromagnetic design, materials investigation, power electronics, control algorithm and cooling.

Two meaningful power ranges for electric vehicles (75kW and 200kW) will be designed and prototyped.

IM

- Flat Wires;
- Fabricated Copper Rotor;
- Die-Cast Copper Rotor.

SyncRel

- Round Wires;
- Pure Reluctance Rotor;
- Rare Earth Free Permanent Magnet Assisted Rotor.

Common Actions

- Accurate Materials Selection;
- Custom Cooling system;
- Optimization Algorithms;
- Custom Control Algorithms;
- Scalability and Low Cost;
- Integrated electronics.

