

ABOUT ESCALATE

ESCALATE (*Powering European Union Net Zero Future by Escalating Zero Emission HDVs and Logistics Intelligence*) is a 4-year Horizon Europe project (GA 101096598). Focused on electric mobility and urban freight, its main aim is to contribute to **reducing the carbon footprint of the freight industry** by testing powertrains of zero-emission Heavy Duty Vehicles (zHDVs) in real-world long-haul scenarios.

OBJECTIVES

- ▲ **Developing and demonstrating:**
High-efficiency long-haul b-HDV, f-HDV and r-HDV / Cost-effective standardised modular electric multi powertrains / Connected grid-friendly multi energy fast charging concepts and solutions / Five trustworthy modular digital twins.
- ▲ **Seamless integration and fluid operation** of zero-emission HDV fleets both en-route and in the storage depots/logistics hubs.
- ▲ **Global Leadership** for European Automotive, Logistics, and Infrastructure & Powering EU Absolute Zero Future.



CONSORTIUM

The consortium consists of **37 innovative partners** from 13 countries. The project is led by FEV Europe (Project Coordinator), Surrey University (Technical Coordinator), and RWTH Aachen University (Financial Coordinator).



MORE INFORMATION

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ESCALATE

Powering European Union Net Zero Future
by Escalating Zero Emission HDVs
and Logistic Intelligence



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101096598.

INNOVATIONS & TECHNOLOGICAL SOLUTIONS

- ▶ Modular, standardised, and scalable center and multi-e-powertrain components and interfaces.
- ▶ On-board energy and thermal management algorithms.
- ▶ Cost-efficient and grid-friendly fast-charging solutions up to 1 MW and green H2 refuelling solutions.
- ▶ Digital twin and simulation toolchain.
- ▶ AI-powered predictive maintenance algorithms.
- ▶ Trustworthy and explainable fleet management tools and interfaces for better economies of scale, LCA, and lower TCO.

PILOTS

ESCALATE involves a total of five HDV pilots meant to significantly boost the innovation design framework via multidimensional innovative behaviour (MIB). How? By focusing on the intentional generation, promotion, and participation of the manufacturers, end-users, and implementers'!



540km Vuosaari (Helsinki) – Jyvaskyli – Vuosaari (Helsinki)

Range Extender Long Haul



800km UK: Dundee – Southampton

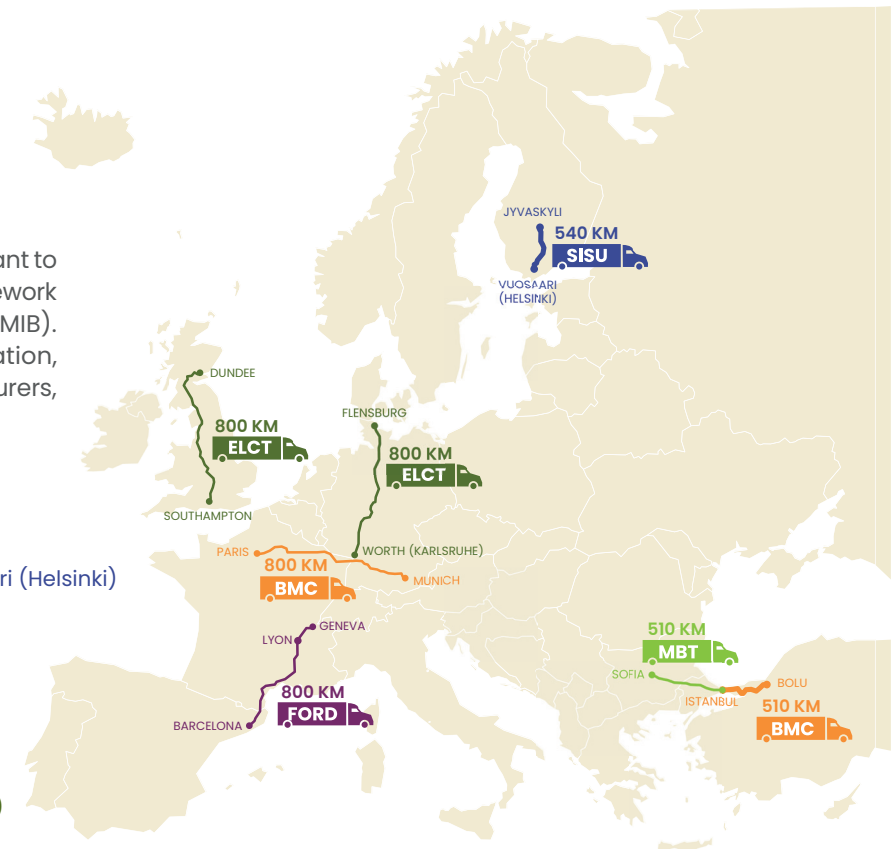
800km Germany: Flensburg – Worth (Karlsruhe)

Battery-electric Refrigerator Truck – Trailer powered via Rooftop Photovoltaic Solar Panels & Short Charging Time



800km Geneva – Lyon – Barcelona

Long Haul Fuel Cell Refrigerator Truck with optimized e-Powertrain & Hybrid Freight Cooling



800km Munich – Paris

510km Bolu – Istanbul – Bolu

Fuel-cell Tractor-Truck with High Operational Flexibility & Short Refueling Time



510km Istanbul – Sofia

Battery eTruck with high efficiency modular powertrain

