



Funded by the European Union
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ESCALATE

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

ESCALATE PROJECT

International Exhibition for logistics, mobility, IT and supply chain management, Munich

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11/05/2023



- AEVETO CLUSTER
- VISION & MISSION
- CHALLENGES
- AIMS
- ESCALATE FACTS
- OBJECTIVES
- REAL WORLD PILOTS
- INFRASTRUCTURE PILOTS

ESCALATE

ZEFES

EMPOWER

H2HAUL

Next EIRUCK

VISION & MISSION

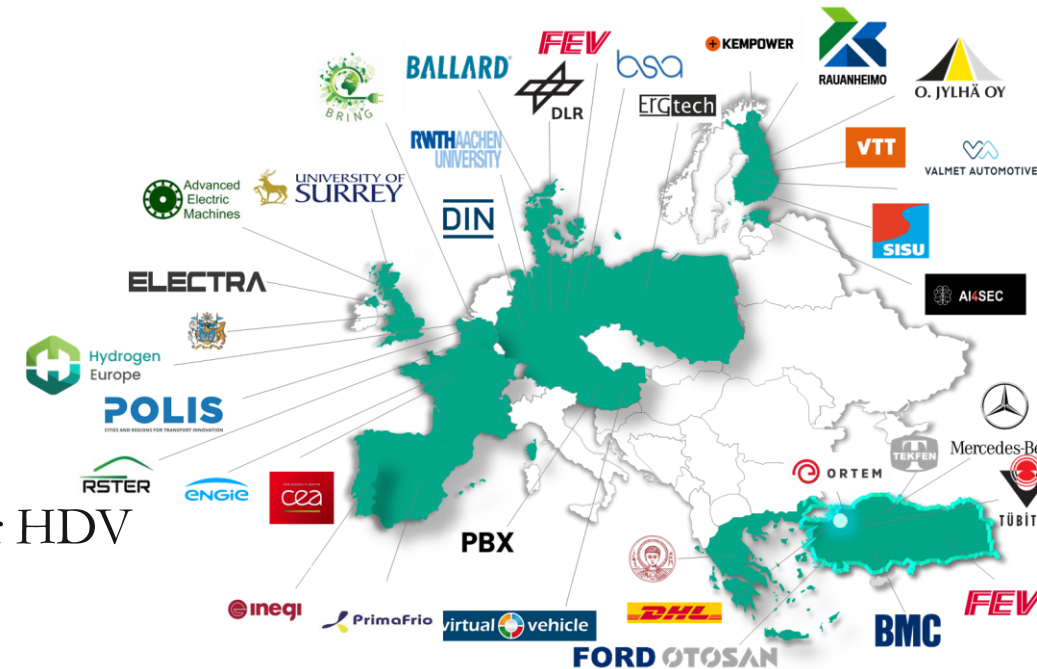
- Transform long haul freight transport to reach 2050 CO₂ targets
- Achieving the envisioned targets necessitates the **development and seamless integration of zHDVs**



ESCALATE will play a pivotal role in propelling Europe to the forefront as a leading pioneer of carbon-neutral freight transport through its innovative:

- Battery Electric HDV
- Fuel-cell Electric HDV
- Range Extender HDV

and *fleet management tools!*



- Diesel-powered HDVs account for about 25% of the total on-road CO₂ emissions in the EU
→ Despite only representing 1% of total fleet vehicles
- The growing trend is incompatible with EU targets aiming for a 60% reduction of GHG emissions by 2050.
- Aside from the well-known problems hindering the commercialization of zHDV such as:
 - Limited range on a single charge/fuel,
 - High upfront costs,
 - Long charging/fueling times,
 - Lower payload,
 - Lack of effective solutions for integrating EVs into fleets, and
 - Power grids without negative impacts

There are **2 major challenges** which are **still outstanding**:

- Uncertainty opposite to the freight and logistics industry's inherently and necessarily conservative nature



- GHG emissions generated during the manufacturing and electricity production phases of EVs

→ All those challenges are addressed on ESCALATE!

Contribute to CL5 aims

...to fight climate change ...by making the **European Union** transport sectors more **climate and environment-friendly, more efficient and competitive, smarter, safer and more resilient.**



ESCALATE FACTS

ESCALATE consortium has brought together the collaborative efforts of :

→ 37 partners from 13 countries with

- 5 Truck Manufacturers
- 3 Infrastructure Supplier
- 6 OEMs
- 4 Shippers
- 10 Research Institutes
- 5 NGO

€ Budget

- 22,4 Million € Project Costs
- 16,6 Million € EU Contributions

Duration: 42 Months

01/2023 – 06/2026



..are formulated in such a way that..



O1. D&D of ground-breaking high-efficiency long-haul *b*-HDV, *f*-HDV and *r*-HDV at a minimum GVW of 40t with 800km uncharged range under real-world operational conditions



O2. D&D of cost-effective standardized modular electric multi-powertrains in RW conditions for a min 500 km daily operation under full load for 6 months



O3. D&D of grid-friendly (multi) energy fast charging solutions



O6. Global Leadership for EU Automotive, Logistics, and Infrastructure & Powering EU Absolute Zero Future



O4. Seamless integration and fluid operation of *z*-HDV fleets



O5. Development of 5 Modular DTs

...they all bring back to the «challenges»

Demonstration, Evaluation and Validation of Pilots: P1-P5



- 24 Months of Tests under Real-World Conditions
- 5 Demonstrator Vehicles
- +500.000 km
- Regional and Cross-border Tests

Demonstration, Evaluation and Validation of Pilots: P1 & P2

- Helsinki, Finland
- Regional Tests

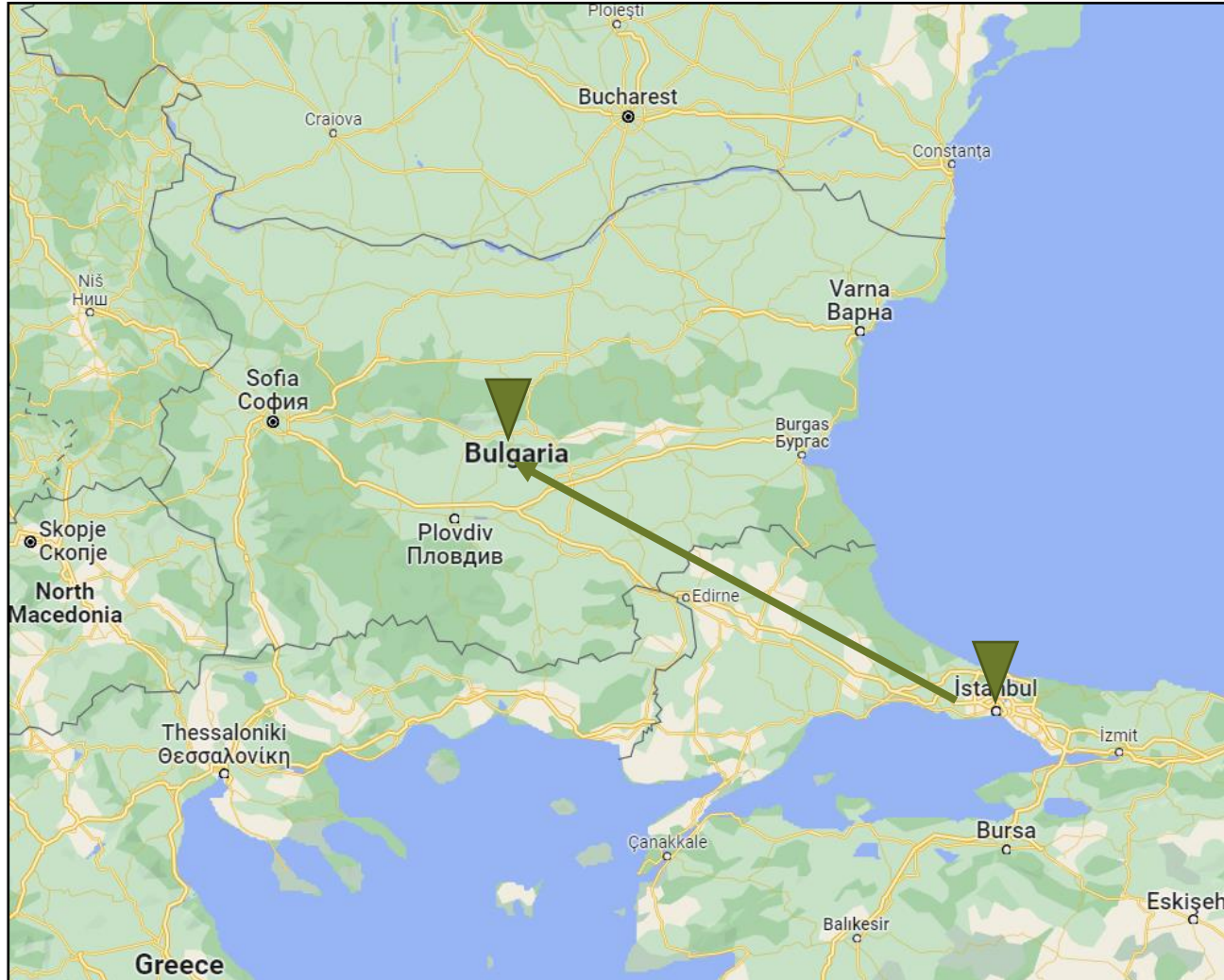
P1 (SISU): Range Extender Long Haul
Vuosaari (Helsinki) → Jyväskylä →
Vuosaari (Helsinki) : 540 km

- Germany, France and Turkey
- Regional Tests
- Cross-border Tests

P2 (BMC): Fuel-cell Tractor-Truck with High Operational Flexibility & Short Refueling Time
Bolu → İstanbul → Bolu : 510km
Munich → Paris : 800km



Demonstration, Evaluation and Validation of Pilots: P3



- Turkey and Bulgaria
- Regional Tests
- Cross-border Tests

Харків
P3 (MBT): Battery eTruck
with high efficiency modular
powertrain
Istanbul → Sofia: 510km

Demonstration, Evaluation and Validation of Pilots: P4 & P5



P4: UK and Germany

P4 (ELCT): Battery-electric Refrigerator Truck
-Trailer powered via Rooftop Photovoltaic Solar Panels & Short Charging Time
Flensburg → Worth (Karlsruhe): 800 km
Dundee → Southampton: 800 km

P5: France and Spain

P5 (FORD): Long Haul Fuel Cell Refrigerator Truck with Optimized e-Powertrain & Hybrid Freight Cooling
Geneva → Lyon → Barcelona: 800 km

Additionally, ESCALATE will showcase 3 pioneering pilots focused on advancing charging and hydrogen infrastructure...

Mobile-modular
H2
Filling station

TEKFEN

Green fix
Multi-fuel
station

ENGIE

1 MW
Fast Charger

KEM

- Advanced Refueling
- Digital Twin establishment
- Cloud Control



- MW-level Charging Management
- System Scalability for Different power levels
- Grid Monitoring + Waste Heat Management



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Europe
to the forefront as a leading pioneer
of
a carbon-neutral freight transport.



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Thank you!

ESCALATE

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