




AEVETO Cluster



-  Mapping Energy Infrastructure
-  Lobbying in Brussels
-  Joined events and communication strategy to maximize impact



ZEFES Project Introduction

Zero Emission, flexible vehicle platforms with modular powertrains
serving the long-haul Freight EcoSystem

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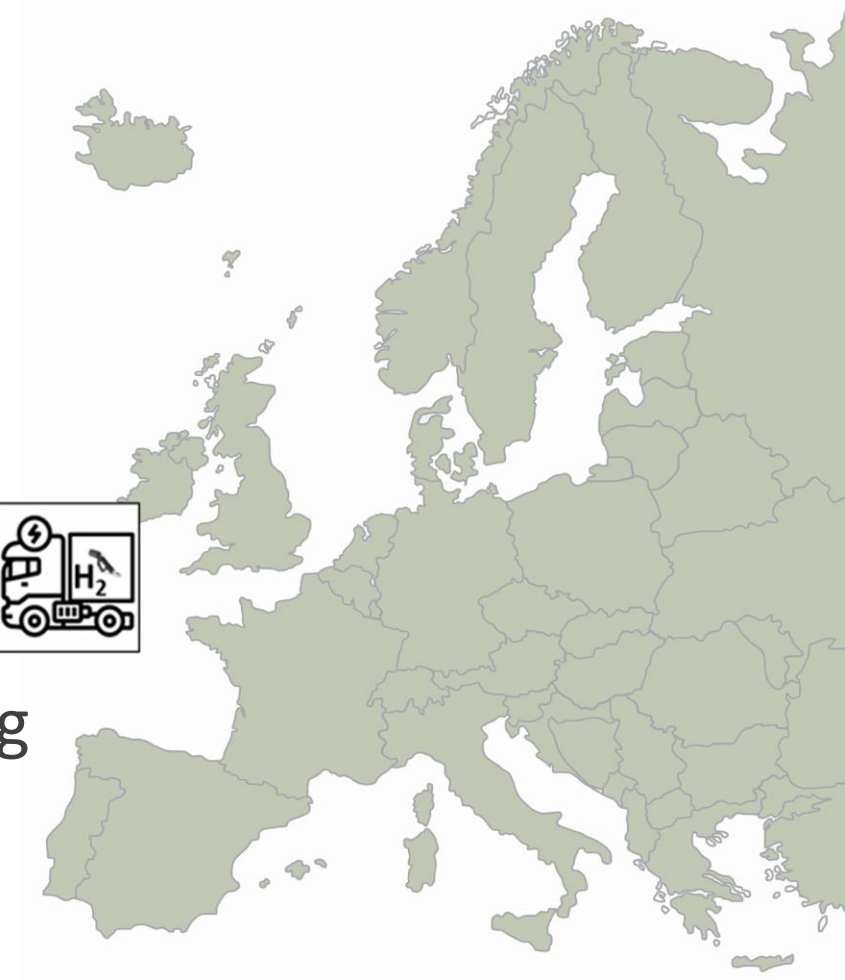
www.zefes.eu



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Vision and Story

- 🚛 Europe commits itself to be CO₂ neutral by 2050
- 🚛 Long haul freight transport needs to be transformed to reach this goal
- 🚛 Zero Emission Heavy Duty Vehicles are key to achieve the set-out targets
 - 🚛 Battery Electric Vehicles (BEVs)
 - 🚛 Fuel Cell Electric Vehicles (FCEVs)
- 🚛 ZEFES will contribute to make Europe the leading example for a carbon-neutral transport system

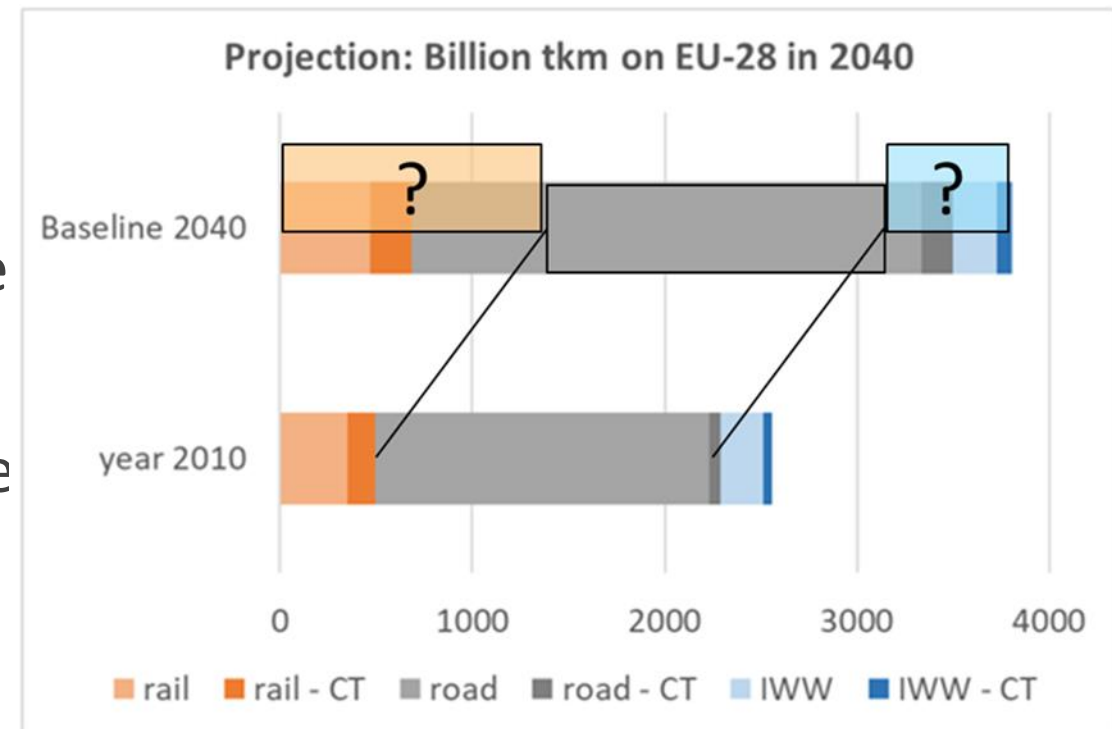


Challenges transport and logistics, fit for 55

- 🚚 Growth of freight transport in Europe 2010 – 2040, 49%
- 🚚 Reduction CO2 for HDV 2019 - 2030, 45% and 2019 - 2035, 65%*

- 🚚 Transport and logistics efficiency, do more with less
- 🚚 Utilisation of existing infrastructure (road, rail, iww)
- 🚚 Diversity within Europe at cross border, national, regional level
 - 🚚 legislative framework,
 - 🚚 topography and available modes

🚚 Drivers shortage








source: DLR; results of the model Demo-GV

*https://climate.ec.europa.eu/eu-action/transport-emissions/road-transport-reducing-co2-emissions-vehicles/reducing-co2-emissions-heavy-duty-vehicles_en

Current Challenges BEV/FCEV



-  BEVs and FCEVs have a limited range
-  Available payload is affected (e.g. by the weight of the batteries)
-  Lack of available energy infrastructure (charging points and hydrogen filling stations)
-  Higher costs due to energy prices and low-scale production

 Incorporation into daily fleet operations is affected by all of the above



Ambition



2

Create a pathway for long-haul BEVs and FCEVs to become more **affordable** and **reliable**, more **energy efficient**, with a **longer range** per single charge and **reduced charging times** able to meet the user's needs

4

Develop technologies which can deliver **promised benefits** (easy handling, similar driving hours & charging/hydrogen refuelling stations, high speeds and ability to operate in complex transport supply chains).

1

Execute **real-world demonstrations** of **long-haul BEVs** and **FCEVs** across Europe to take zero-emission long-haul goods transport in Europe to the next level.

3

Make the **mapping** of flexible and abundant **charging/refuelling points** and novel charging concepts.

5

Create novel tools for **fleet management** to support the rising number of long-haul BEVs and FCEVs vehicles in the logistics supply chains, in the form of a **Digital Twin**.

Objectives



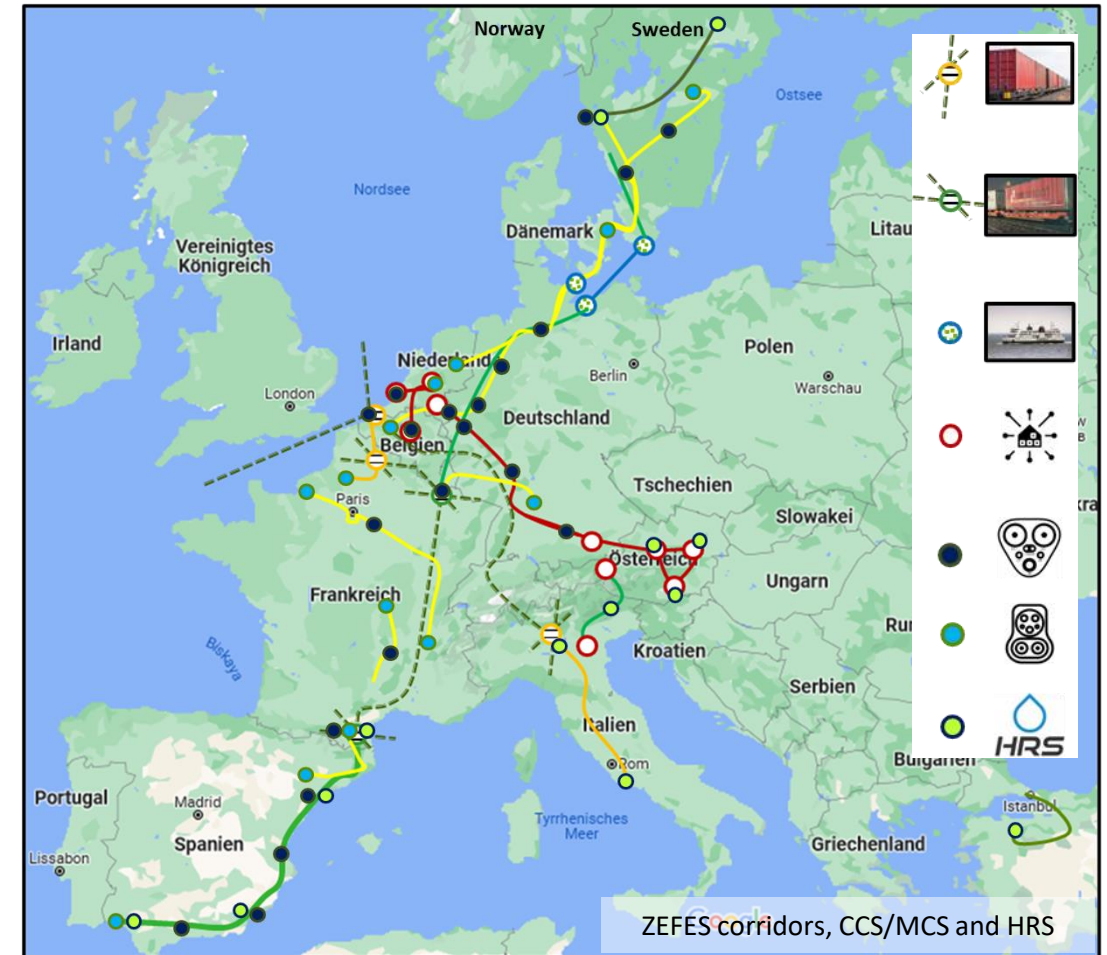
- 🚛 Improve **modular** Heavy Duty (HD) Battery Electric Vehicles (BEVs) and Fuel Cell Electric Vehicles (FCEVs)
- 🚛 Demonstrate, to accommodate and make ZE HD transport possible,
 - 🚛 an interoperable **Megawatt Charging System (MCS)**
 - 🚛 the location deployment strategy for **hydrogen refueling stations (HRS)**,
- 🚛 Provide **digital and fleet management tools** specifically for HD ZEVs, fleet integration with remote operational optimisation of vehicle performance



Objectives

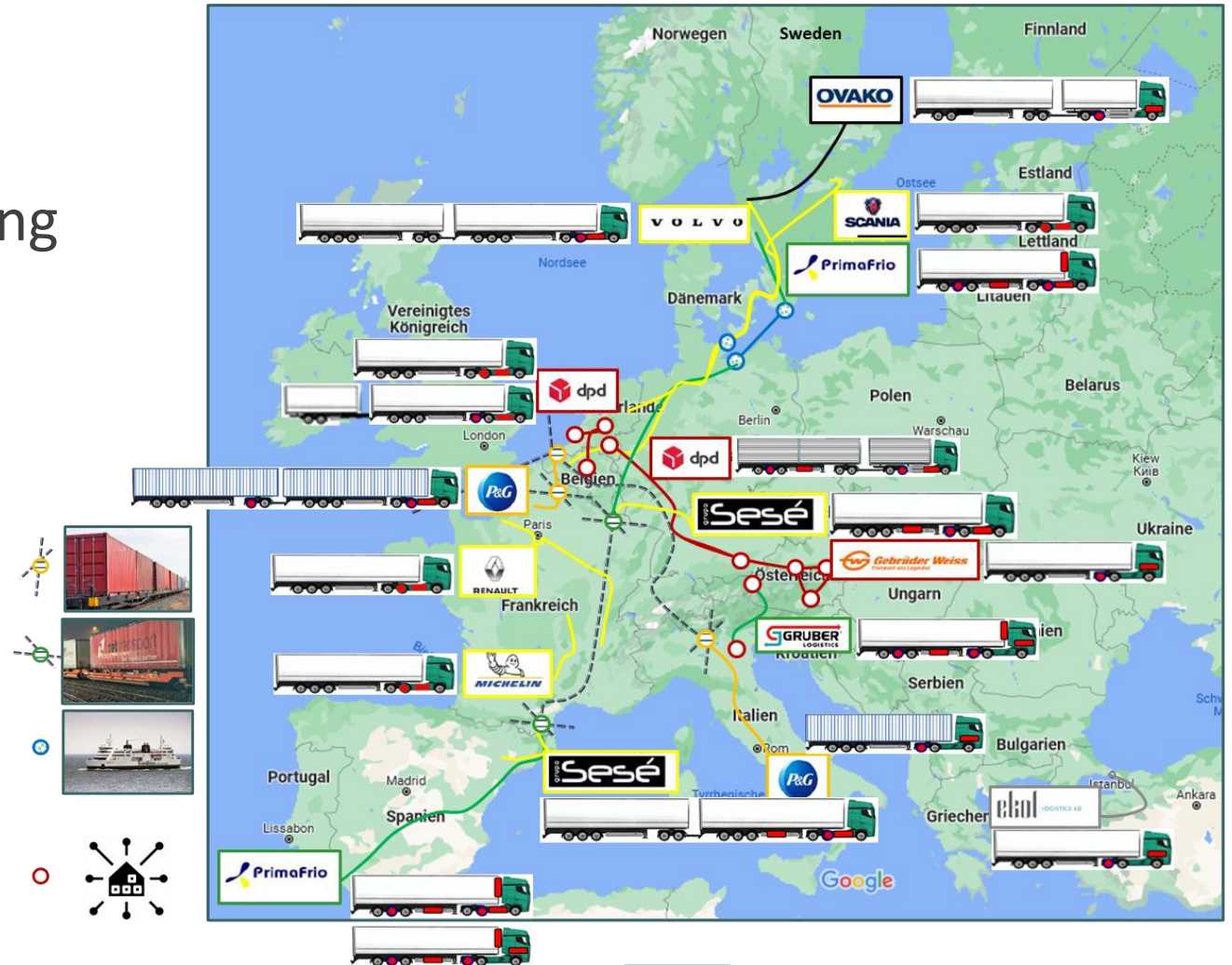


- 🚛 Demonstrate missions on national, cross-border, TEN-T corridors
 - 🚛 fulfilling the requirements for range and payload,
 - 🚛 comparing the deployability of BEVs and FCEVs
- 🚛 Define pathways for a significant **price reduction & volume increase**
- 🚛 Analyse the **impact** on business, society and energy efficiency



Use cases

- 15 demonstrations on TEN-T corridors
- Novel vehicle and fast charging concepts
- Intermodal and cross border
- 15 months under real-world conditions
- >1Mio kilometres of data



Diversity of missions, Challenges and KPIs



Diversity of logistic service providers		Challenging route components		Challenging factors and KPIs	
Temperature controlled goods		Long-haul: up to 1300 km one-way		Minimise extra waiting time for charging/refuelling	
General cargo		Shorter hub-to-hub and factory-to-factory transport		Availability of technology	
Consumer goods		Cross mountains		Having the right energy carrier and quantity on board	
Parcel distribution		Multi-modal (including train and ferry)		Reducing extra costs	
Heavy steel		Stretching across Europe using TEN-T corridors		Remote optimisation and predictions	
Automotive components				Permissions to drive (incl. tunnels)	

Partners



40 Partners

- 6 OEM's
- 14 Suppliers
- 11 Shippers & retail
- 9 Research



23 Million EU funding
39 Million project costs



Start date 01 January 2023
Duration 42 Months



Thank you for your attention!



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