

Creating Efficient and Effective Urban Freight Logistics Solutions in the North Sea Region

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FDT – Association of Danish Transport and Logistics Centres

FDT – Association of Danish Transport and Logistics Centres

- Is a non-profit public similar organisation approved by the Danish Ministry of Transport.
- Encompass seven open and neutral Transport and Logistics Centres (Logistics Platforms) located in Denmark.
- Works with added value logistics services including electrified distribution.
- Performs research and test on freight Electric Vehicles.
- Has its headquarter in Aalborg in the Northern part of Jutland.



Background

When developing solutions for electric vehicles, a **combined focus on both electrified car solutions and electrified urban freight solutions** is an obvious opportunity, which is utilised in the E-Mobility NSR project by FDT and associated partners around the North Sea Region.

Electrified urban freight solutions can be offered in many ways e.g. by **consolidating goods in Logistics Centres** outside the city, from where **transshipment onto electric vehicles** can be performed. Hereby **more silent, clean and efficient distribution methods can be introduced**, for the benefit of both the inhabitants of the cities and the transport companies performing the services.



Why this focus?

- **EU White Paper for Transport - *Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system***
- **Goals for a competitive and resource efficient transport system; benchmarks for achieving the 60% GHG emission reduction target compared to 1990 levels**
 - *“Halve the use of ‘conventionally-fuelled’ cars in urban transport by 2030*
 - *Phase them out in cities by 2050;*
 - *Achieve essentially CO2-free city logistics in major urban centres by 2030.”*

COM (2011) 144 Final



Concept of distribution with EV's

- Vehicles are loaded at transport centres/ terminals outside the city centres. (Goods coming in via road, rail and sea)
- Vehicles can easily enter city centres (with certain precautions) also during night hours.
- Charging spots are placed at strategic locations, next to the biggest loading and unloading sites (stores and consumption areas).
- No local CO₂ and noise emission.
- At present the largest electric trucks produced by OEM's can have a payload up to 10-12 tonnes.
- With a range of minimum 80-100 km, distribution in most European cities can be performed on one charging before returning to the Transport Centre. (The average range of freight EV's currently on the market is around 140-160 kilometres)

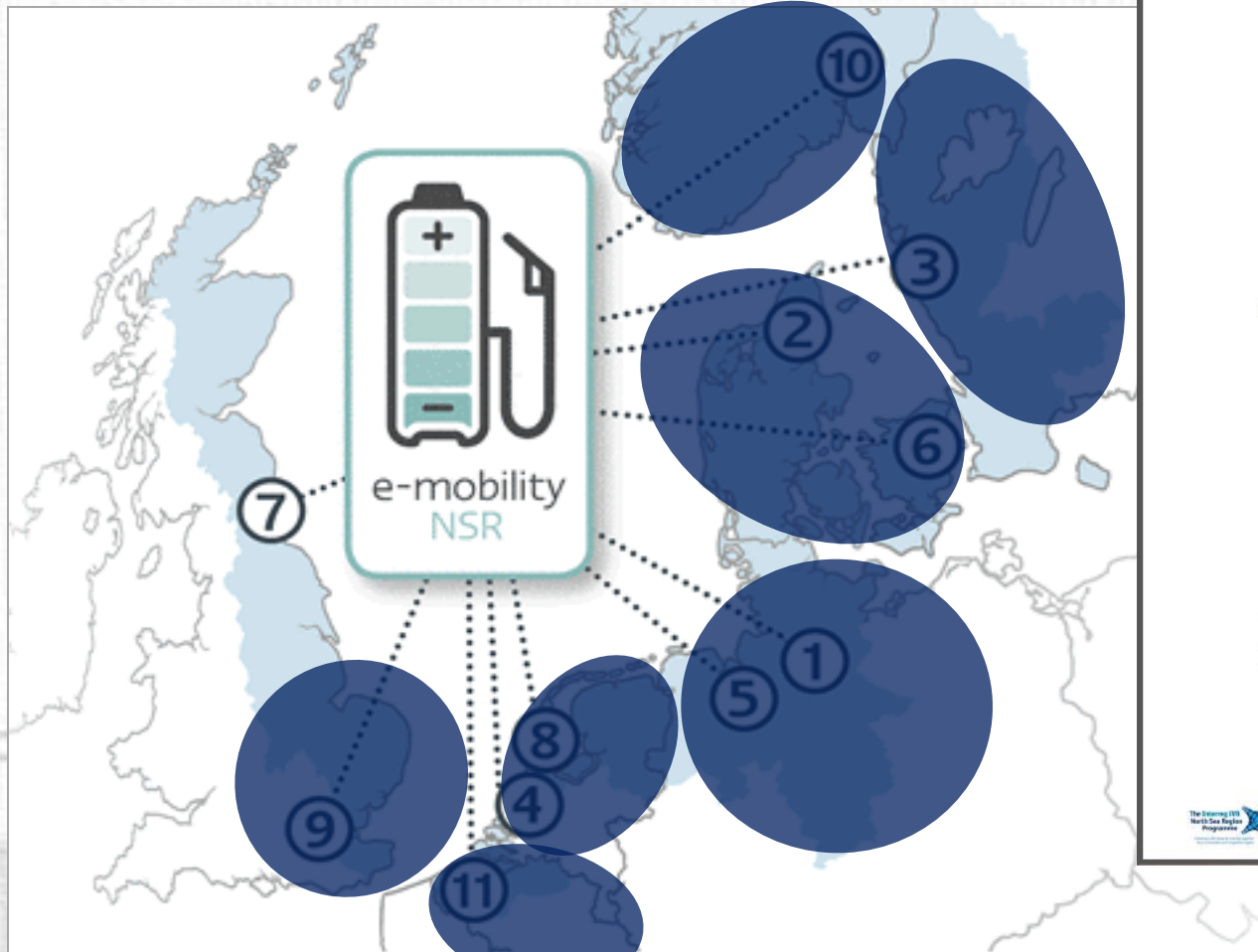
E-Mobility NSR Report

Comparative Analysis of European Examples of Schemes for Freight Electric Vehicles

Regional studies produced by the Lindholmen Science Park (SE), Technical University of Delft (NL), Hamburg School of Applied Science(DE), ZERO (NO) and FDT (DK) delivers the latest overview and reflections on utilisation of electric vehicles in combination with freight logistics and goods transportation in urban areas.

The regional reports are compiled into one report, which enables analysis of common findings from the reports.

Geographical coverage of the E-Mobility NSR studies



e-mobility NSR

E-Mobility NSR
Comparative Analysis of European Examples of Schemes for Freight Electric Vehicles
Compilation report
TU Delft, HAW Hamburg, Lindholmen Science Park, ZERO and FDT
| September 2013 |
Aalborg, Denmark

The cover features a map of Europe with black dots indicating the locations of the study areas. At the bottom, it includes logos for 'The Erasmus+ UK North Sea Region Programme' and 'The European Union The European Regional Development Fund'.

Findings

In **total 58 cases of EV utilisation** for freight distribution and goods transportation have been analysed.

Each case study followed the same analytical framework including:

- Status
- Participants
- Project description
- Goals
- Finance
- Technical specifications
- Results including:
 - Customer attitude
 - Impact
- Technical Specification of 36 vehicles included in an Annex



Action Plans for Amsterdam, Copenhagen and Hamburg

- The so-called “last mile deliveries” are well suited for the use of electric vehicles, as trips are often recurring and planned ahead and the functionality of the electric vehicles including benefits like: low emissions, silent driving, good acceleration, manoeuvrability and easiness to use, all aspects, which are advantageous for companies performing last mile deliveries.

German Findings

Rating of factor "Integration"

Time frame until action can be implemented: S (Short) M (Medium) L (Long)
 ● High ● Medium ● Low
 ✓ Implemented

Effort	Low	<ul style="list-style-type: none"> M Drivers license S Entry in pedestrian zones with city logistic M Usage of bus lanes 	<ul style="list-style-type: none"> ✓ EV tax exemption S Freight EVs in tenders 	
	Medium	<ul style="list-style-type: none"> M Green transport label L Low emission zone 	<ul style="list-style-type: none"> S Privileged parking S Information on freight EVs incl. cargo cycles M Privileged loading bays M EV repair shop M Limitations for loud vehicles, EV exemption 	<ul style="list-style-type: none"> S EVs in municipal fleet L City toll, EV exemption
	High	<ul style="list-style-type: none"> M Company charging infrastructure S Consolidation centers 	<ul style="list-style-type: none"> S Freight R&D projects L Cargo cycle paths L Zero emission zone M Purchase price subsidy 	
		Low	Medium	High

Replacement

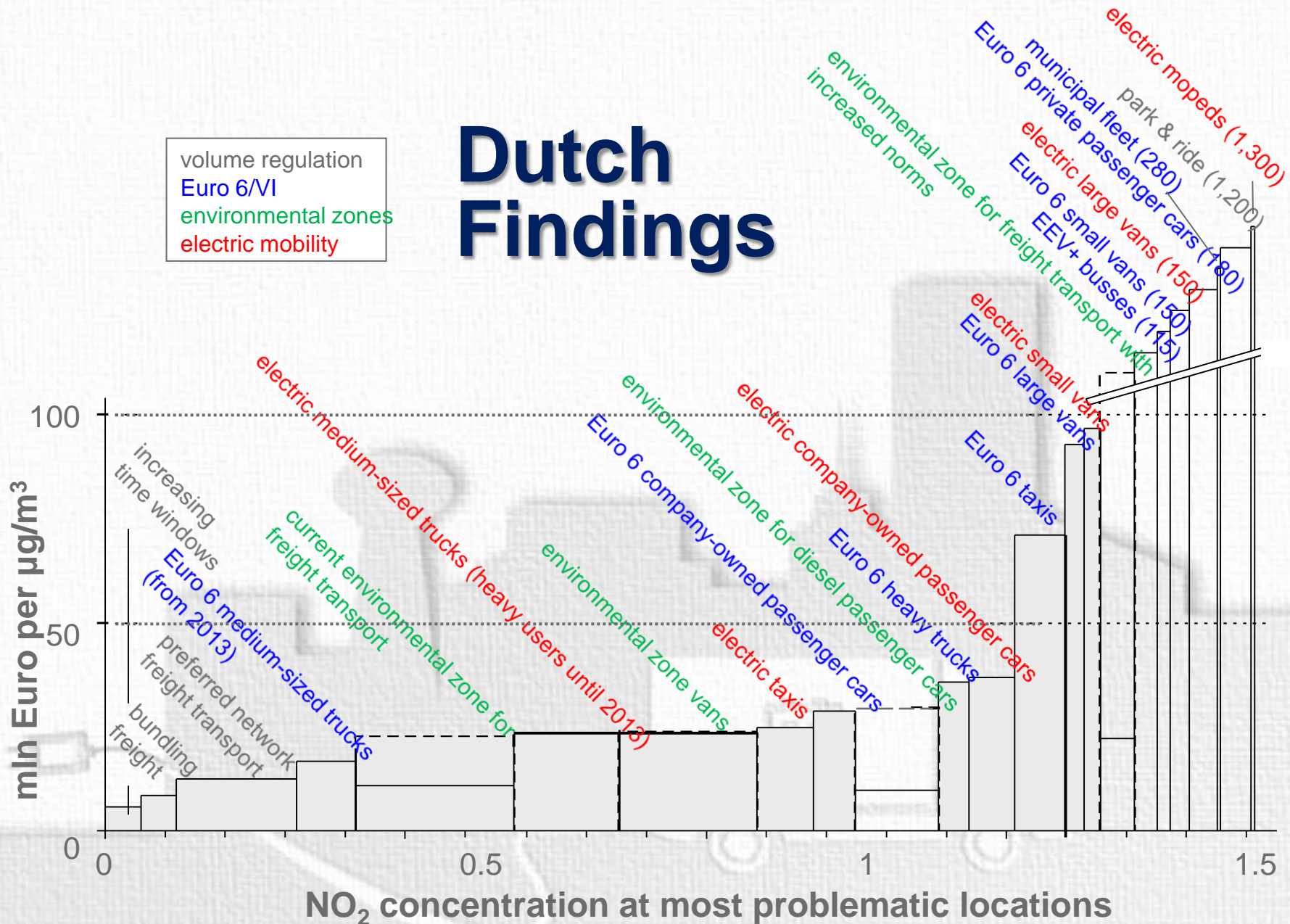


e-mobility NSR

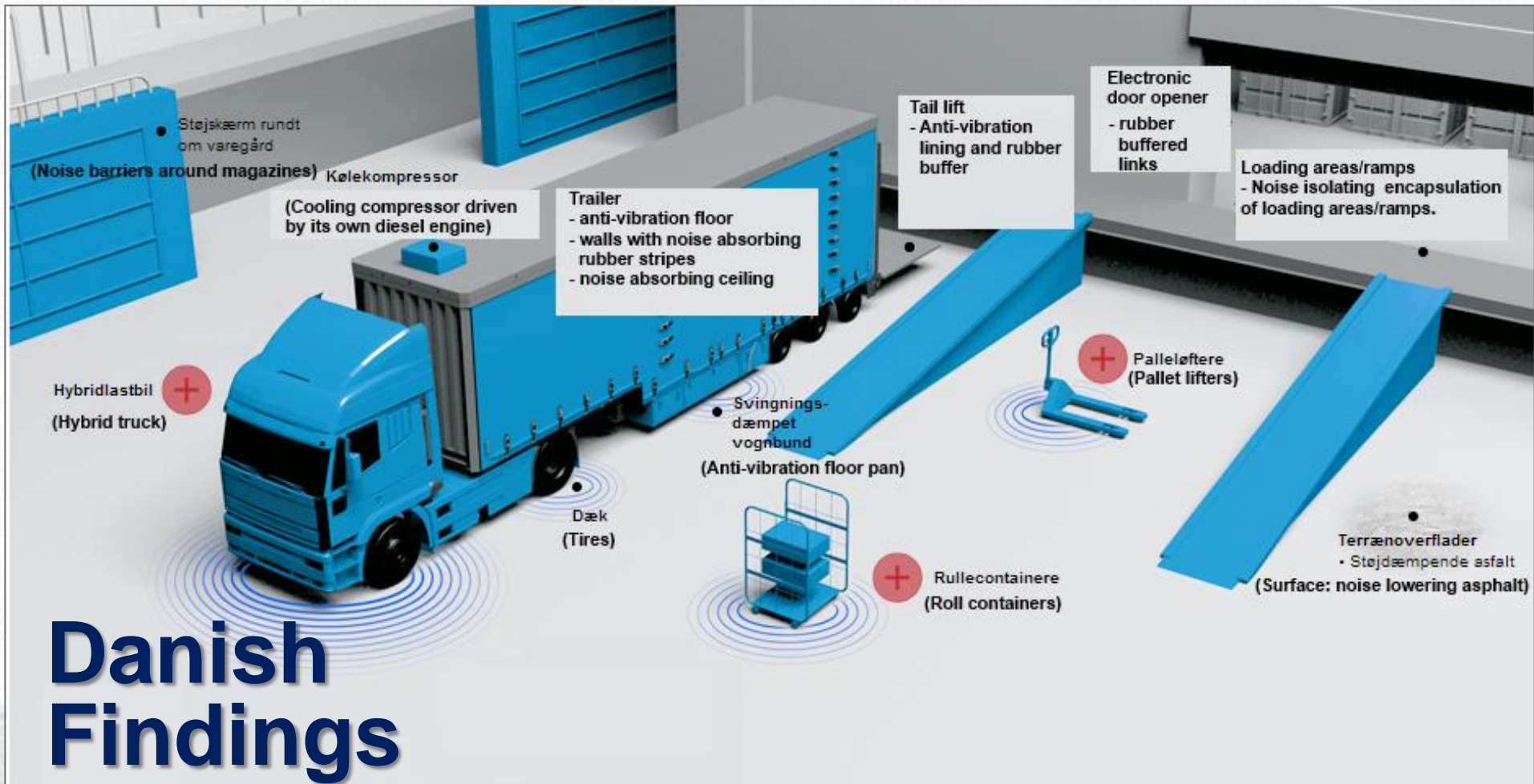


Dutch Findings

volume regulation
 Euro 6/VI
 environmental zones
 electric mobility



Equipment needed for silent distribution



Transnational Action Plan Recommendations

- The three action plans shows in common that policy measures, such as granting **direct financial subsidies** to transport companies and operators may be successful in the short term, but **hard to sustain on the long term**. On a long term basis in-direct support in form of **access restrictions, emission zones, urban consolidation centres and night distribution schemes**, supported by updates in associated regulations, **stand a higher chance of being successful means** for further introducing freight electric vehicles and making it less attractive to use vehicles with internal combustion engine.

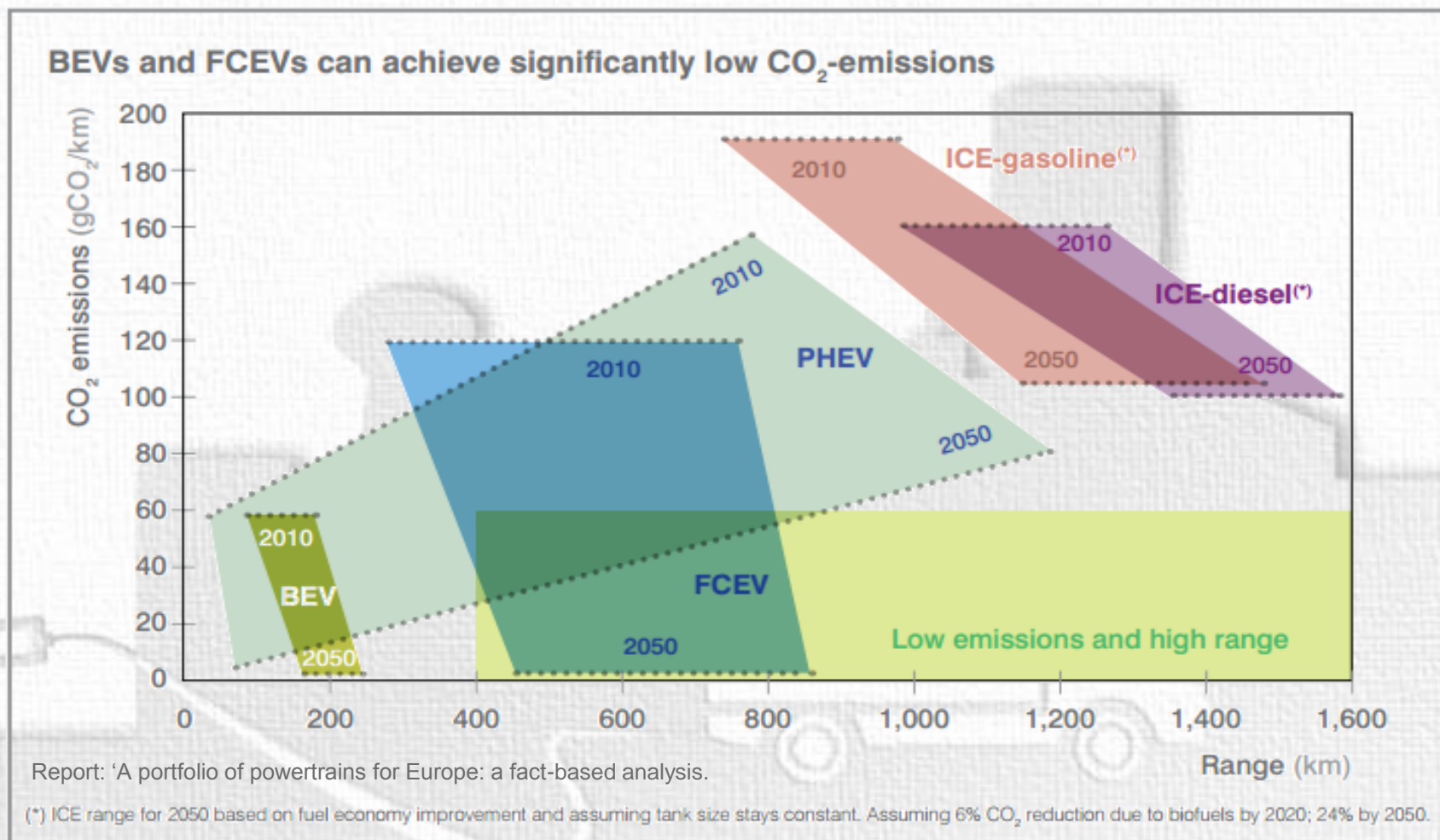
Challenges for Freight EV's

- The weight of the batteries should be reduced to limit the loss of payload
- Low maximum speed and heating issues during winter
- Lack of repair shops and workers with the right qualifications.
- Up until now, total cost of ownership (TCO) for electric freight vans is more expensive than for fossil fuel equivalents.
- Significant market uptake seems to still require public subsidies and regulatory support.
- Regulations and legislation to support EV uptake for distribution purposes is only available in some countries.
- New product/market anxiety
- Companies are waiting for tested solutions

Some Conclusions of the Work

- Transport and Logistics Centres located outside the city centres are ideal locations for loading the electric vehicles
- Vehicles can easily enter city centres (with certain precautions) also during night hours.
- Many tests of electric vans and trucks have been performed, often supported by public subsidies
- Charging spots should be placed at strategic locations, next to the biggest loading and unloading sites (stores and consumption areas).
- Need for additional ICT EV support tools for the transport sector.
- The level of EV utilisation is heavily diversified around the North Sea Region
- EU's transport and energy policies provide a framework and associated financing opportunities, now the market needs to adapt.

Combination of Alternative Fuels



Manufacturer:	EMOSS – DUTCH MANUFACTURER – BASED ON DAF PLATFORM			
Model:	CM 1916	CM 1920	CM 1924	
Performance				
Motor:				
	Type	Electric		
	Motor Power	230 kW		
	Torque	3.390 Nm		
Acceleration:				
	Top speed	85 km/h		
Battery:	Lithium Iron Phosphate			
	Battery Pack	160 kWh	200 kWh	240 kWh
	Charge time (63 A)	3,6 or 7,3 hours	4,5 or 9 hours	5,5 or 11 hours
	Range (NEDC, 80% payload)	150 km	190 km	230 km
Charge system:	44 kW or 22 kW			
Operating Limits:				
	Gross Vehicle Weight	18.600 kg	18.600 kg	18.600 kg
	Payload	10.966 kg	10.430 kg	9.894 kg
Dimensions				
Exterior dimensions:				
	Length	9,07 m		
	Width	2,46 m		
	Height	2,77 m q		



CUFLOS – A Forum for Clean Urban Freight Logistics Solutions



Subscribe news

North Sea Region Electric Mobility Network - E-Mobility NSR

At present, several cities and regions in Europe and the North Sea Region are developing strategies and action plans to bring forth electro mobility.

To achieve this objective, a range of different incentives are currently being developed throughout Europe to seize the potential of electro mobility, especially in terms of local and regional traffic.

However, to date many of these activities are neither well synchronized nor aligned with one another, so that realization is actually confined to only a few cities or regions.

[read more](#)



News

[e-mobility Forum >](#)

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