

Joint proEME and IEA-HEV Task Force 41 workshop

Battery-electric freight vehicles in city logistics



1st Workshop: Vehicle technologies and applications of battery-electric freight vehicles in city logistics

1 p.m. to 5 p.m., October 15th 2019

DLR Stuttgart, Pfaffenwaldring 38-40, 70569 Stuttgart

The first Task 41 workshop “battery-electric freight vehicles in urban logistic” was held in Stuttgart (Germany) on October 15th 2020. Dedicated topics at the workshop were:

- current technical characteristics of battery-electric freight vehicle
- development of the charging infrastructure: costs and availability
- practical experience and knowledge from pilot projects and initial applications

24 local and international guests from logistics as well logistics associations, vehicle industry, charging-infrastructure, city administration and research took part in the discussed on opportunities and hurdles for the successful implementation of battery-electric freight vehicles in urban logistics.



The workshop was introduced with impulse presentations by companies from the vehicle, infrastructure and logistics sectors. The first session “current technical characteristics of battery-electric freight vehicle” was held by the vehicle manufacture Daimler with insights on their current electrification strategy. In the second session “development of the charging infrastructure: costs and availability” three key charging infrastructure suppliers in Germany: ABB, ChargeHere by EnBW and EBG compleo, have introduced dedicated AC and DC charging stations for commercial vehicle application with information on suitable power ranges and current available charging points in Germany. The third session “practical experience and knowledge from pilot projects and initial applications” was structured by impulse presentations from the logistic company Dachser in Stuttgart, Germany and Fier Automotive from Helmond, the Netherlands. Dachser share their experiences with the Fuso eCanter and Mercedes-Benz eActros in Stuttgart and Fier Automotive presented the results from the EU-Project ElectricGreenLastMile

Agenda

13:00	Introduction	Stadt Stuttgart, DLR
<u>Pitches 1: Current technical characteristics of battery-electric freight vehicles</u>		
13:15 – 13:30	Daimler AG QUANTRON	Moritz Grüters Tbd
<u>Pitches 2: Development of the charging infrastructure: costs and availability</u>		
13:30 – 13:45	EBG compleo	Manfred Frenger
13:45 – 14:00	ABB EV Charging	Barbara Dörsam
14:00 – 14:15	EnBW ChargeHere	Konrad Benze
<u>Pitches 3: Practical experience and knowledge from pilot projects and initial applications</u>		
14:00 – 14:15	Dachser Emission-Free Delivery Stuttgart	Christian Polziehn
14:15 – 14:30	Project eGreenLastMile (Fier Automotive)	Harm Weken
14:45	Coffee Break	
<u>Workshop session</u>		
15:00	Introduction <i>Workshop concept: Two topics will be addressed in group work in line with the impulse lectures.</i> <i>a. Potentials and challenges of the use of battery electric commercial vehicles in urban traffic</i> <i>b. Problems and solutions of the charging infrastructure for the urban supply of battery-electric commercial vehicles</i>	
15:15 – 15:45	Group work 1 <i>Two groups each work on one of the topics on flipcharts</i>	
15:45 – 16:15	Group work 2 <i>Change of topics in the groups</i> <i>Repeat group work</i>	
16:15 – 16:45	Presentation and discussion of the results (15 min per topic) <i>Objective: To identify opportunities and hurdles for the successful operation of battery-electric commercial vehicles in urban traffic</i>	
16:45	Summary	
17:00	Closing of workshop	

On the basis of the technical and experience reports, the guests of the workshop discussed the problems and solutions for the implementation of vehicles and suitable charging infrastructure in urban logistics in two interactive groups.

The main topics of the group discussion were the still ongoing uncertainty in battery-electric as well as fuel cell technologies, the lack of space for electric charging stations and loading stations in urban areas and the uncertainty about necessary charging capacities for different transport applications. Furthermore, the discussion with the participants showed that there is no business case for fast charging solution in commercial vehicles. It could be useful for the logistic and fleet operators to learn more about current applications with battery-electric freight vehicles including information on their total cost of ownership.

The discussions were noted on two flipcharts and illustrated in the following tables:

Group 1: Operating of Electric freight Vehicles

Challenges	Potentials
<ul style="list-style-type: none">• Operationalisation: range vs. payload; secured payload for greater planning reliability; planning effort for loading stops; flexibility (loading time)• Space for loading: sufficient loading capacity; sufficient loading points at the delivery zones; intermodal hubs?; delivery zone-building-ramps• Purchase decision: high investment costs, vehicle classes (Vecto); investment vs operating costs; too high investment costs result in return of investment above total cost of ownership• Operator = Energy supplier	<ul style="list-style-type: none">• Post-delivery: effectiveness through 24/7 delivery, planning security (e.g. driving ban), fleet management• Politics: Generate cost parity; extend tolls; extend discount for e-drives; clear regulations with time horizon• Attractiveness of the profession of professional driver• Company Image• Use of renewable energy and reduction of emissions• new financing concepts – leasing and rental in combination with BEV• Privileges/limitations/directions can reduce the relevant of investments /price; „Stars with low hanging fruits“- niche applications with better business cases“

Group 2: Charging Infrastructure for electric freight vehicles

Problems	Solutions	Prospects
<ul style="list-style-type: none">• Uncertainties about the BEV vs. Fuel Cell technologies• Areas for charging stations in the city• Distribution traffic is standing anyway at night → no need for fast charging station• Feed-in power of grid for electricity currently not available• Unclear which capacity is required where• Life cycle costs for vehicle- battery- infrastructure• bi-directional function → standards as well as technical and economical	<ul style="list-style-type: none">• Perspective more loading zones necessary• haulage with BEV means more space is needed• Electricity „no-regret“• Energy management• Charging station for commercial vehicles• Divide area for charging areas• Battery regulation for 2nd and 3rd life	<ul style="list-style-type: none">• Invest risk• Orientation of charging points to customer behaviour• Charging point close to energy production (wind, solar and substations)• Fuel Cell for Heavy duty vehicles• No business case for fast charging solution in commercial vehicle