



e-mobility NSR

E-Mobility NSR

CUFLOS – Clean Urban Freight Logistics Solutions

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| September 2014 |

Aalborg, Denmark

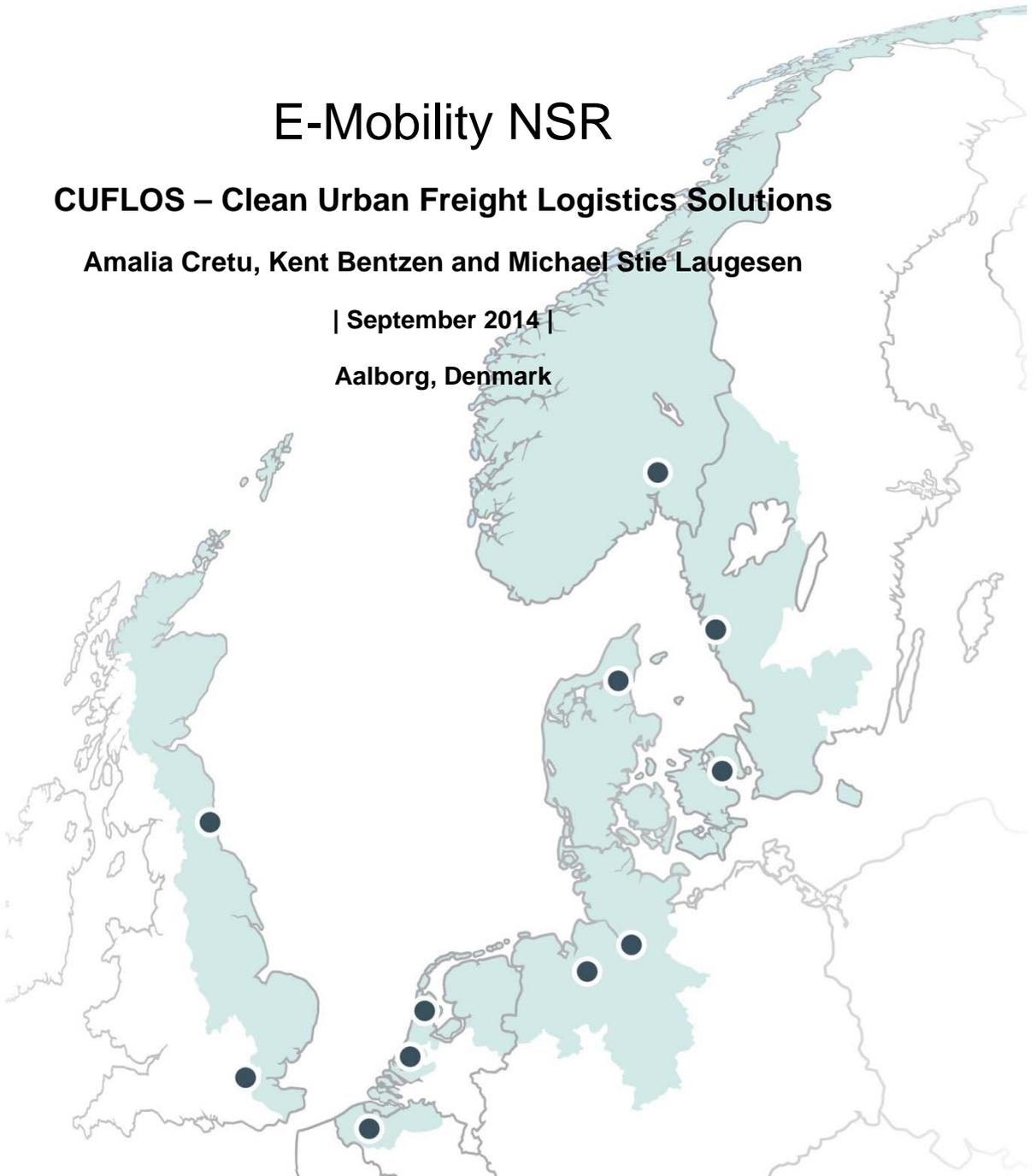




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INTRODUCTION

This report represents the output of the CUFLOS sessions within Activity 7.6. entitled “Transnational Strategy”. The purpose of establishing a forum for Clean Urban Freight Logistics Solutions (CUFLOS) is to build a structure for a repository for knowledge and networking to gather and develop strategic, financial, institutional and organisational aspects of freight e-mobility.

The objectives of CUFLOS are as follows:

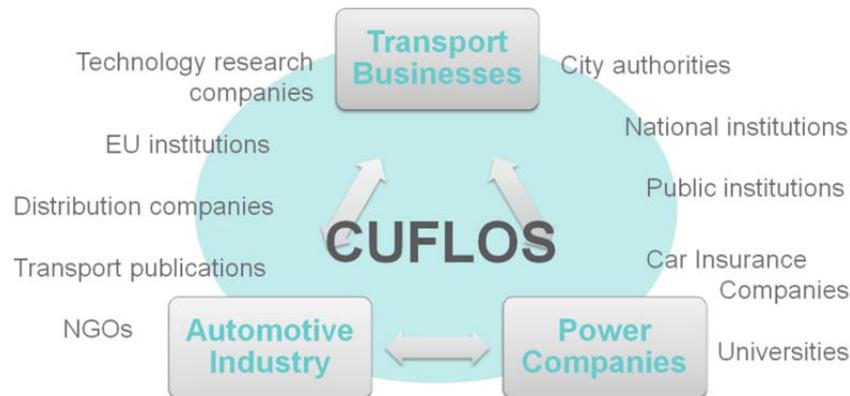
- Promote cleaner and more efficient city logistics solutions;
- Stimulate dialogue, discussion and exchange of knowledge on the subject of clean urban freight logistics solutions;
- Create synergy between different findings from relevant fields to generate better transnational solutions ;
- Get a holistic approach over the subject ;
- To ensure transnational orientation of findings.

The CUFLOS sessions have taken place as forum events at the different partners of the E-Mobility NSR project. The sessions of the CUFLOS sessions have had specific themes from which results are reflected into the reports of the other activities in WP 7.

The partners involved in the organisation and structuring of the CUFLOS forum events are:

Administrative Partners
FDT – Association of Danish Transport and Logistics Centres
HAW – Hamburg University of Applied Science
Province of North Holland
Lindholmen Science Park

Depending on the theme of each forum, the number and type of partners has varied. The types of external partners and stakeholders that have been invited to join the sessions are interconnected through their field of work and interest.



The administrative structure of the CUFLOS events and organization within the project looks as follows:

Activity	01.10.2011 – 31.03.2012	01.04.2012 – 30.09.2012	01.10.2012 – 31.03.2013	01.04.2013 – 30.09.2013	01.10.2013 – 31.03.2014	01.04.2014 – 30.09.2014
7.6.1: Feasibility study for the forum						
7.6.2: Establishing CUFLOS						
7.6.3: Forum Events						
7.6.4: Transnational Strategy						

The structure shown above is also reflected in the structure of this report.

FEASIBILITY STUDY OF THE FORUM

Before commencing any activities within CUFLOS, a feasibility study for such forums to take place, has been performed together with all consortium partners. The structure, agenda and outputs of these activities has been presented to the partners and while some opinions were divergent on the nature of the forums, there was a unanimous agreement that meetings of such nature would be beneficial for the project. The nature of the CUFLOS results is transnational, because of the involvement of partners and stakeholders from different countries from the EU grouped in meetings, sharing different experiences of freight e-mobility according to their context. Such results are important and relevant for the development of a 'Transnational Strategy' that makes available different practices around EU. This can help further with the market up-take of the freight e-mobility across Europe.

It has also been brought to the attention of the administrative partners the opportunity of develop CUFLOS on an online platform, most preferably via the E-Mobility NSR website. This way, stakeholders or partners can access the CUFLOS themes from the Internet. The number of stakeholders could also increase beyond the number of attendants at CUFLOS forum events.

In regards to the timeliness of this kind of actions, CUFLOS is envisioned to continue even after the end of E-Mobility NSR project. Therefore, an envisioned financial structure of CUFLOS events could turn up as following:

- a) 01.10.2011 – 30.09.2014 (36 months) part of E-mobility NSR
- b) After 01.10.2014:
 - Integration of CUFLOS in new EU projects
 - Find international sponsors
 - Participation fee

A preliminary structure of the organization and agenda of CUFLOS events can be done as below:

1. Before CUFLOS Workshops

- Finding speakers and case studies for the sessions
- Sending written materials for the session to participants

2. During each of the three CUFLOS Workshops

- Each session will include an external speaker giving a presentation
- The presentation will end up with a number of questions for discussion
- CUFLOS Participants will be split in smaller groups
- Each group will discuss the questions during a small session
- The reflections on the questions will be discussed in plenum

3. After CUFLOS Workshops

- Sending the results and reflections on the workshops to participants / partners

ESTABLISHING CUFLOS – THE PILOT

Having the approval of the feasibility study to start the CUFLOS activities, the first CUFLOS session took place in Gothenburg, Sweden 23rd of October 2012. This wasn't the official start of the CUFLOS sessions, but rather a pilot to confirm the demand for such activity, interest and willingness. Around 30 participants were present at the pilot event from both the internal partners, but as well from external stakeholders. Besides of the CUFLOS partners (FDT,



HAW Hamburg, WFB Bremen GmbH, Province of North Holland) the following institutions and organizations were present: Municipality of Hoeje-Taastrup, Northumbria University, London Metropolitan University, Delft University of Technology, Lindholmen Science Park, City of Amsterdam, ZERO, Test Site Sweden and Yacht & Car Concepts. The theme of the CUFLOS pilot was "Supporting the Usage and Deployment of EVs' for Freight Distribution". The external speaker Per Olof Arnäs from

Chalmers University of Technology took the floor and presented his reflections on energy resources with his presentation “Evaluation of Energy Resources for freight transport - a system perspective”. A group session followed where the following challenges were discussed:

How should usage and deployment of EVs’ for freight distribution be supported?	What are the core challenges for freight transport in using EV’s?
<ul style="list-style-type: none"> - Via Information campaigns about benefits including user experiences - Via public subsidies - Via Public authorities as role models - Via designated EV lanes and zones 	<ul style="list-style-type: none"> - Social, (e.g. human resource element, prejudices) - Technical, (e.g. size, payload, selection, functionality, range) - Infrastructure, (e.g. charging facilities) - Legal, (e.g. insurance, licenses, safety) - Financial, (e.g. public support) - Commercial? (e.g. cost-effectiveness)



4 ways to reduce the environmental footprint from road transport

- Use less energy
- Increase transport efficiency
- Use alternative energy sources
- Increase mobility

CHALMERS
Technology Management and Economics
Logistics and Transportation

CC-BY Per Olef Arvola

The discussion also put light on information campaigns, where it could be beneficial to include companies, who have successfully adopted EVs into their fleet and have used it with a marketing purpose. However, CUFLOS event participants noted the main marketing of EVs and charging infrastructure should be the responsibility of EV manufacturers and charging infrastructure providers. Summing up, the main focus of the discussion was put on the legal and financial incentives. Summing up, the main focus of the discussion was put on the legal and financial incentives and less attention was put to the informational campaign and public authorities serving as role models.

Based on the number of participants and the positive feedback, the CUFLOS pilot was considered a success and the official CUFLOS forums can take place.

CUFLOS FORUM EVENTS

As envisioned in the feasibility study there will be three CUFLOS events during the lifetime of E-Mobility NSR project.

FDT and Lindholmen Science Park organized a transnational full day CUFLOS workshop on September 26th 2013 in Gothenburg, Sweden. The target was networking and information exchange between companies using electric freight vehicles in their business, having a focus on ICT solutions for e-mobility in urban freight. The participating organizations were Zero (NO), FDT (DK), DB Schenker (DE), Copenhagen Electric (DK), Hamburg School of Applied Sciences (DE), TNT Express (NL), Fraunhofer IVI (DE), Vehco (SE), Stadsleveransen (SE) and Lindholmen Science Park (SE).



The second CUFLOS event took place in Haarlem, Netherlands on the 10th of October 2013. The general theme under which the session was held is entitled “Clean and Efficient Distribution Methods”. Work Package 7 Leader Michael Stie Laugesen held a presentation on this subject. The discussion followed afterwards with inputs to the theme. Electrified urban freight solutions can be offered in many ways e.g. by consolidating goods in Logistics Centres and transport hubs outside the core area of the city, where transshipment onto electric vehicles can be performed. Hereby more silent, clean and efficient distribution methods are introduced, for the benefit of both the inhabitants of the cities and the transport companies performing the service.

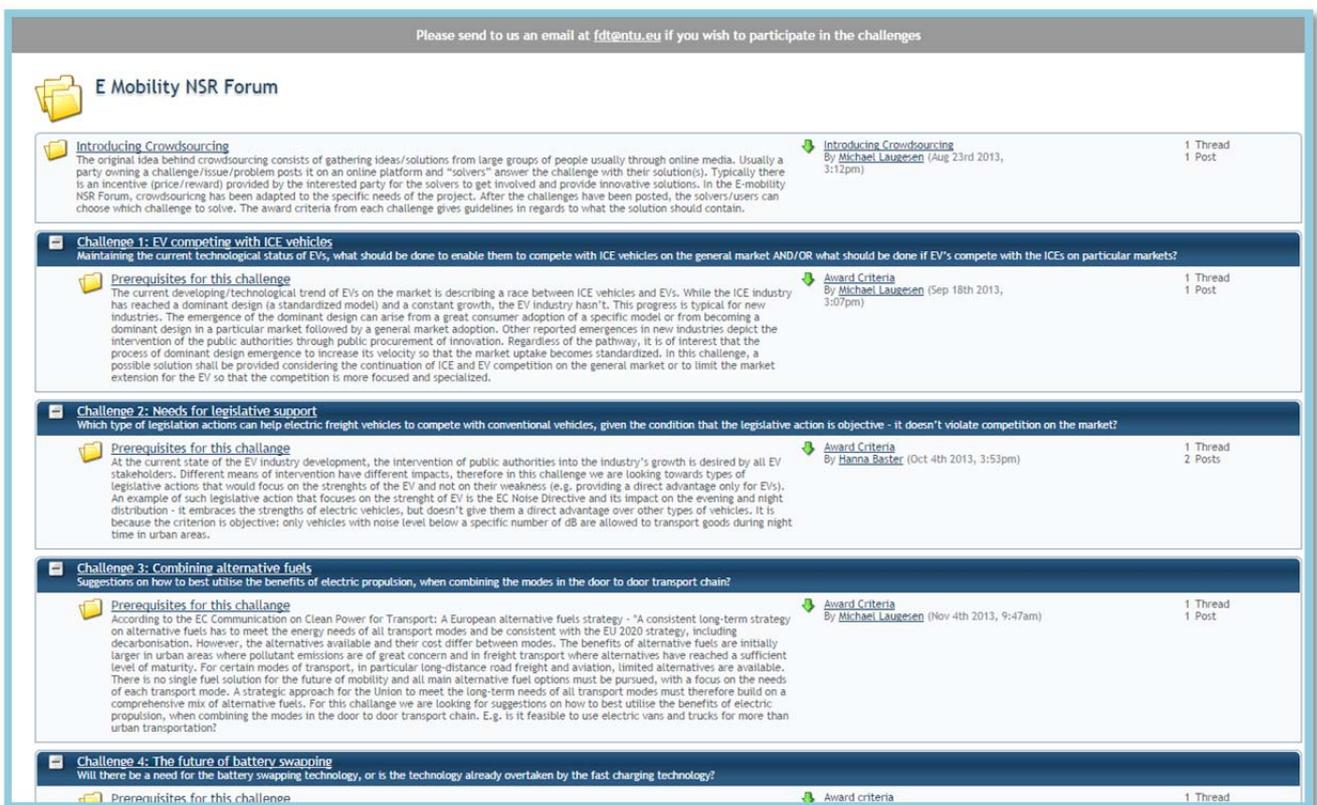
Meanwhile, it has been agreed to develop an online version of the CUFLOS forums accessible through the E-Mobility NSR homepage.

The rationale behind having an online platform that accommodates electronic versions of the CUFLOS events was to increase the impact of the results of the project and of the CUFLOS forum events. It would help propagate these results to a higher number of stakeholders. The online platform has been agreed upon with all administrative partners and a “forum”-like application was

developed to be accessed through the E-Mobility NSR project's webpage or directly at the address: <http://forum.e-mobility-nsr.eu/>

The organization of the online platform was inspired by the crowdsourcing initiatives. The original idea behind crowdsourcing consists of gathering ideas/solutions from large groups of people usually through online means. Usually a party owning a challenge/issue/problem posts it on an online platform and "solvers" answer the challenge with their solution. There is normally an incentive provided by the interested party for the solvers to get involved and provide innovative solutions. In the E-mobility NSR Forum, crowdsourcing has been adapted to the specific needs of the project. Partners are invited to send their own challenges to the moderator of the forum for validation and posting. The moderator posts the challenge in the name of the interested partner. Each challenge sent for validation has to contain a short description/background, the challenge request, the award criteria, the deadline and the reward.

After the challenges have been posted, the solvers/users can choose which challenge(s) to solve. The award criteria from each challenge gives guidelines in regards to what the solution should contain. A "reply" to another user's challenge is not qualifying the user for the award unless a proper argumentation with improvements to the original post is given. Choosing the winner solver of the challenge stands in the choice of the challenge owner. All the rewards were handed over to the winners at the last E-mobility conference on the 11th of April in London. The following illustrates how the 'challenges' have been structured and organized in the online forum application.



Please send to us an email at fdt@ntu.eu if you wish to participate in the challenges

E-Mobility NSR Forum

- Introducing Crowdsourcing**
The original idea behind crowdsourcing consists of gathering ideas/solutions from large groups of people usually through online media. Usually a party owning a challenge/issue/problem posts it on an online platform and "solvers" answer the challenge with their solution(s). Typically there is an incentive (prize/reward) provided by the interested party for the solvers to get involved and provide innovative solutions. In the E-mobility NSR Forum, crowdsourcing has been adapted to the specific needs of the project. After the challenges have been posted, the solvers/users can choose which challenge to solve. The award criteria from each challenge gives guidelines in regards to what the solution should contain.
Award Criteria By [Michael Laugesen](#) (Aug 23rd 2013, 3:12pm) 1 Thread 1 Post
- Challenge 1: EV competing with ICE vehicles**
Maintaining the current technological status of EVs, what should be done to enable them to compete with ICE vehicles on the general market AND/OR what should be done if EV's compete with the ICEs on particular markets?
Prerequisites for this challenge: The current developing/technological trend of EVs on the market is describing a race between ICE vehicles and EVs. While the ICE industry has reached a dominant design (a standardized model) and a constant growth, the EV industry hasn't. This progress is typical for new industries. The emergence of the dominant design can arise from a great consumer adoption of a specific model or from becoming a dominant design in a particular market followed by a general market adoption. Other reported emergences in new industries depict the intervention of the public authorities through public procurement of innovation. Regardless of the pathway, it is of interest that the process of dominant design emergence to increase its velocity so that the market uptake becomes standardized. In this challenge, a possible solution shall be provided considering the continuation of ICE and EV competition on the general market or to limit the market extension for the EV so that the competition is more focused and specialized.
Award Criteria By [Michael Laugesen](#) (Sep 18th 2013, 3:07pm) 1 Thread 1 Post
- Challenge 2: Needs for legislative support**
Which type of legislative actions can help electric freight vehicles to compete with conventional vehicles, given the condition that the legislative action is objective - it doesn't violate competition on the market?
Prerequisites for this challenge: At the current state of the EV industry development, the intervention of public authorities into the industry's growth is desired by all EV stakeholders. Different means of intervention have different impacts; therefore in this challenge we are looking towards types of legislative actions that would focus on the strengths of the EV and not on their weakness (e.g. providing a direct advantage only for EVs). An example of such legislative action that focuses on the strength of EV is the EC Noise Directive and its impact on the evening and night distribution - it embraces the strengths of electric vehicles, but doesn't give them a direct advantage over other types of vehicles. It is because the criterion is objective: only vehicles with noise level below a specific number of dB are allowed to transport goods during night time in urban areas.
Award Criteria By [Hanna Baster](#) (Oct 4th 2013, 3:53pm) 1 Thread 2 Posts
- Challenge 3: Combining alternative fuels**
Suggestions on how to best utilise the benefits of electric propulsion, when combining the modes in the door to door transport chain?
Prerequisites for this challenge: According to the EC Communication on Clean Power for Transport: A European alternative fuels strategy - "A consistent long-term strategy on alternative fuels has to meet the energy needs of all transport modes and be consistent with the EU 2020 strategy, including decarbonisation. However, the alternatives available and their cost differ between modes. The benefits of alternative fuels are initially larger in urban areas where pollutant emissions are of great concern and in freight transport where alternatives have reached a sufficient level of maturity. For certain modes of transport, in particular long-distance road freight and aviation, limited alternatives are available. There is no single fuel solution for the future of mobility and all main alternative fuel options must be pursued, with a focus on the needs of each transport mode. A strategic approach for the Union to meet the long-term needs of all transport modes must therefore build on a comprehensive mix of alternative fuels. For this challenge we are looking for suggestions on how to best utilise the benefits of electric propulsion, when combining the modes in the door to door transport chain. E.g. is it feasible to use electric vans and trucks for more than urban transportation?
Award Criteria By [Michael Laugesen](#) (Nov 4th 2013, 9:47am) 1 Thread 1 Post
- Challenge 4: The future of battery swapping**
Will there be a need for the battery swapping technology, or is the technology already overtaken by the fast charging technology?
Prerequisites for this challenge: Award criteria 1 Thread

A total number of five challenges have been posted on the forum.

1. **Challenge 1: EV competing with ICE vehicles** – Maintaining the current technological status of EVs, what should be done to enable them to compete with ICE vehicles on the general market AND/OR what should be done if EV's compete with the ICEs on particular markets?

Description: The current developing/technological trend of EVs on the market is describing a race between ICE vehicles and EVs. While the ICE industry has reached a dominant design (a standardized model) and a constant growth, the EV industry hasn't. This progress is typical for new industries. The emergence of the dominant design can arise from a great consumer adoption of a specific model or from becoming a dominant design in a particular market followed by a general market adoption. Other reported emergences in new industries depict the intervention of the public authorities through public procurement of innovation. Regardless of the pathway, it is of interest that the process of dominant design emergence to increase its velocity so that the market uptake becomes standardized.

In this challenge, a possible solution shall be provided considering the continuation of ICE and EV competition on the general market or to limit the market extension for the EV so that the competition is more focused and specialized.

2. **Challenge 2: Needs for legislative support** – Which type of legislation actions can help electric freight vehicles to compete with conventional vehicles, given the condition that the legislative action is objective - it doesn't violate competition on the market?

Description: At the current state of the EV industry development, the intervention of public authorities into the industry's growth is desired by all EV stakeholders. Different means of intervention have different impacts, therefore in this challenge we are looking towards types of legislative actions that would focus on the strengths of the EV and not on their weakness (e.g. providing a direct advantage only for EVs).

An example of such legislative action that focuses on the strength of EV is the EC Noise Directive and its impact on the evening and night distribution - it embraces the strengths of electric vehicles, but doesn't give them a direct advantage over other types of vehicles. It is because the criterion is objective: only vehicles with noise level below a specific number of dB are allowed to transport goods during night time in urban areas.

An example of an answer provided by users is visible on the forum and it states:

Legislative actions have one general objective: help electric freight vehicles to compete with conventional vehicles. There are three groups of actions:

- 1st group: Legislative actions enabling solving problems associated with deployment of electric freight vehicles;
- 2nd group: Legislative actions enabling solving problems associated with urban delivery activities through electric freight vehicles;
- 3rd group: Legislative actions enabling illumination of benefits associated with deployment of electric freight vehicles

Very important: not to prioritize any specific technology, such as electric vehicles, but base access to the regulatory incentives to all vehicles of reduced emission of pollution and noise.

3. **Challenge 3: Combining alternative fuels** – Suggestions on how to best utilise the benefits of electric propulsion, when combining the modes in the door to door transport chain?

Description: According to the EC Communication on Clean Power for Transport: A European alternative fuels strategy - "A consistent long-term strategy on alternative fuels has to meet the energy needs of all transport modes and be consistent with the EU 2020 strategy, including decarbonisation. However, the alternatives available and their cost differ between modes. The benefits of alternative fuels are initially larger in urban areas where pollutant emissions are of great concern and in freight transport where alternatives have reached a sufficient level of maturity. There is no single fuel solution for the future of mobility and all main alternative fuel options must be pursued, with a focus on the needs of each transport mode. A strategic approach for the Union to meet the long-term needs of all transport modes must therefore build on a comprehensive mix of alternative fuels.

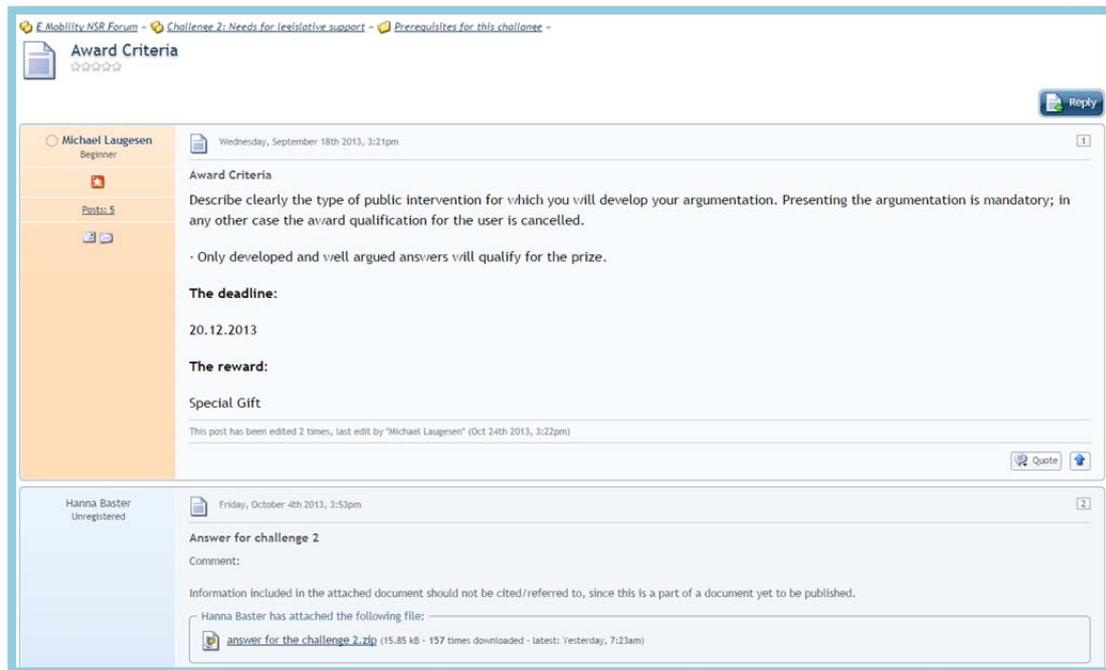
4. **Challenge 4: The future of battery swapping** – Will there be a need for the battery swapping technology, or is the technology already overtaken by the fast charging technology?

Description: With Better Places Bankruptcy in May 2013, numerous Battery Swap Stations, including 18 in Denmark are left un-used. The Battery Swap Stations are all (technological ready) to be put in use again, but so far no one has positioned themselves to overtake the management of the stations. Many OEM's are now focusing on the fast charging technology instead, but also recognizes the benefits of the swapping technology.

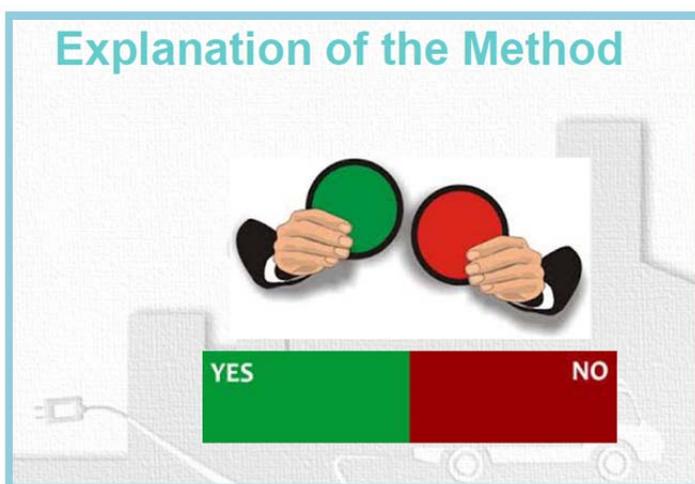
5. **Challenge 5: ICT and EVs** - Can ICT make a difference for EVs in city logistics and e-commerce?

Description: The increased demand for effective flows of goods in growing urban areas is the result of urbanization, as well as the increased environmental focus from a political perspective.

Pick-up and delivery of goods in urban areas - city logistics, has a large impact on the economy, availability, life quality and attractiveness of a city. Information can be used as a mean to improve city logistics; improved information systems can be a mean to reduce the range anxiety, trip time and thereby release capacity in the system.



The third CUFLOS event was held at the final conference of the E-Mobility NSR project in London, UK on 11th of April 2014. The theme of this session was the same as the five online challenges. At this event, the CUFLOS event was an interaction between a real-time forum and the online platform using a 'YES/NO' method to interact with the audience. Questions of the online forum were rephrased to enable the audience to take their position to the questions via a dedicated YES or NO stance.



Applicability: Maintaining the current technological level of EVs, are electric freight vehicles able to compete with ICE (internal combustion engine) vehicles on the urban freight logistics market? **YES or NO.**

Is legislative support required to help electric freight vehicles to compete with conventional vehicles, given the condition that the legislative action is objective – it doesn't violate competition on the market? **YES or NO.**

The fourth and last CUFLOS event in the frame of E-Mobility NSR project took place in Hamburg on 22nd of May 2014. The theme of the forum was “Fuelling the Climate 2014”. The session revolved around the results and challenges identified in the report of WP 7, ‘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). The report 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 were compiled in this report, which enables analysis of common findings from the reports. In total 58 cases of EV utilisation for freight distribution and goods transportation have been analysed. Each case study followed the same analytical framework.

Some of the conclusions of the session combined with the ones of the report are described below:

- 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.

TRANSNATIONAL STRATEGY – CUFLOS OUTPUTS

The final output of the CUFLOS events takes the form of a transnational strategy that contains all observations, results and challenges identified through the CUFLOS forums and online platform. The results are presented below and it describes the challenges and recommendations gathered from multinational experiences regarding e-mobility and freight e-mobility. The outputs are extracted from CUFLOS events having the following subjects:

- Energy Resources for Freight Transport;
- Supporting the Usage and Deployment of EVs' for Freight Distribution;
- Clean and Efficient Distribution Methods
- The Benefits of the Swapping Technology
- Fuelling the Climate.

The goals of the strategy are to:

- Make transnational key partnerships;
- Organize transnational CUFLOS workshops;
- Become an important and reliable source of information
- Become an interactive platform for sharing and developing innovative ideas and solutions on clean urban freight logistics
- Promote, support and give inputs to EU policy makers on CUFLOS related subjects.

Below are presented challenges and recommendations of which the goal is to aid in the market uptake and development of both e-mobility and freight e-mobility.

The challenges identified are as follows:

- The weight of the batteries should be reduced to limit the loss of payload;
- Low maximum speed and heating issues of the vehicle cabin during winter;
- Lack of repair shops;
- 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;
- High purchase price;
- Higher range required by the users;
- Electric vehicle must be scratched, even if there was only a minor damage;
- Too risky to drive one of electric vehicles, because the safety was not proved;
- Workshop workers might be not aware that it is a high voltage vehicle, and that therefore a different way of dealing with a vehicle is required;
- High labour cost, which is the main cost associated with urban deliveries;
- Current legislation put too small focus on local environmental benefits coming with electric/alternatively fuelled vehicles.

The recommendations presented below aim to help with solving or minimizing the challenges above listed. These are grouped by legal, political and regulatory, financial, social and technical criteria.

LEGAL, POLITICAL and REGULATORY

- Regulations posing internalization of the external costs produced by ICE vehicles;
- Proposed regulation ensuring that only fully loaded freight EVs will be allowed to enter city centres, in order to decrease pollution and congestion;
- Facilitate EVs driving by allowing them to drive in bus lanes and to build reserved lanes only for EV use;
- Allowing night distribution with EVs in order to avoid the creation of congestion in bus lanes or additional public expenses;
- Implementation of environmental zones, which could discourage the use of ICE (Internal Combustion Engine) vehicles;
- Directing legal and financial support mainly to the light freight electric vehicles as they are more feasible for inner city distribution than large EVs;
- Establish PPPs between Local governments, transport companies and shop owners
- Adjust timelines of policies supporting charging infrastructure and electric vehicles;
- Local authorities should be accompanied by regional policy measures;
- Transport lobbies influence significantly policies at the local, regional and national level;
- Tax exemptions till the time of equalization of prices of alternative and conventionally fuelled vehicles;
- Legislation regulating safety conditions under which an electric vehicle is allowed to be sold in the market are required;
- Strive to ensure that the national framework sets out a long-term tax structure favouring vehicles with reduced emissions and tighten regulations governing environmental zones;
- Emphasize put on noise regulations can give an advantage to electric freight vehicles, since they produce lower noise levels.

FINANCIAL

- It should be even more expensive than currently to enter inner city with cars producing pollution and noise above established limits;
- Changes in the legislation increasing cost of repair above which vehicle (with reduced emission) is not allowed to be repaired but must be demolished;
- Prolong subsidy schemes for electric vehicles in NSR countries

SOCIAL

- People are often not aware that larger EVs exist; informational campaigns are needed;
- Finding a location for city distribution centres can be hard, especially in regard to deteriorating living conditions for inhabitants living in its immediate neighbourhood;

- Labour cost can be decreased if vehicles of reduced emission have an extended allowed delivery window; this way time of deliveries can decrease, because goods can be delivered outside the hours of the heaviest traffic;
- Customers' demand for energy resources has to be considered in a systematic way, which can only be ensured by covering all the following fields: Money, Environment, Ethics and Technology in overall referred to as "MEET";
- Off peak delivery can also decrease time of deliveries, but this action is recommended only when bigger electric vehicles are available on the market;
- Vehicles of reduced emission could be allowed to drive in the environmental zone even if the GVW is above the restricted value, considering their low local impact on the local environment.

TECHNICAL

- The focus should not only be on renewable fuels, but just as important are increasing mobility, transport efficiency, and decreasing energy consumption;
- Developing an urban consolidation centre solution is a prerequisite for the implementation of the freight electric urban distribution on a large scale;
- Range anxiety, scarce charging infrastructure and safety issue connected with noiseless EVs;
- Establishment of charging infrastructure in new urban development areas;
- Associated ICT solutions are needed to support the driver about availability of charging infrastructure.
- Traffic management system implementation can help to increase efficiency of fuel usage, this way extending the range of electric freight vehicles;
- Special safety steps (training/spread of information among mechanics) must be undertaken in order to ensure security of working environment in the workshops;
- Deduction of a battery's weight from the GVW of the vehicle;
- Vehicles are loaded at transport centres/ terminals outside the city centres. (Goods coming in via road, rail and sea);
- Charging spots are placed at strategic locations, next to the biggest loading and unloading sites (stores and consumption areas). At present the largest electric trucks produced by OEM's can have a payload up to 8-12 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.



NORTH SEA REGION ELECTRIC MOBILITY NETWORK

e-mobility NSR

About E-Mobility NSR

The Interreg North Sea Region project North Sea Electric Mobility Network (E-Mobility NSR) will help to create favorable conditions to promote the common development of e-mobility in the North Sea Region. Transnational support structures in the shape of a network and virtual routes are envisaged as part of the project, striving towards improving accessibility and the wider use of e-mobility in the North Sea Region countries.

www.e-mobility-nsr.eu

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