# Regional analysis of various e-mobility modes - Abstract

The project Baltic Sea Region Electric, BSR Electric in short, aims to enhance the utilization of e-mobility in urban transport systems around the Baltic Sea by demonstrating potential applications of various types of urban e-mobility such as electric city logistics (i.e. e-logistics), e-bikes, e-buses, e-scooters and e-ferries. The aim of this report is to assess the current status of the implementation of e-mobility solutions in specific partner regions of the BSR and its major cities in order to keep track of crucial bottlenecks and also to identify successful methods of building e-mobility solutions. In addition to the BSR Electric themes (e-logistics, e-buses, e-scooters and e-ferries/water taxis), the topic of e-cars was included in order to have an extensive overview of the current situation in the e-mobility sector. Furthermore, e-cars are the forerunners in e-mobility and are the most popular e-vehicles.[1]

Information about the status quo and potential of e-mobility in the above-mentioned sectors was acquired through a questionnaire and partner input. The questionnaire was conducted in the Baltic Sea Region by the corresponding partner during summer and autumn 2018. The questionnaire was carried out in Estonia, Latvia, Poland, Germany, Denmark, Norway, Sweden and Finland. Partner input consisted of the corresponding country's policies and infrastructures in addition to potential plans in e-mobility and key ideas of the e-mobility approach of the country. Descriptive statistics for each country was compiled based on the questionnaire

[1] 2017.10.18 BSR electric - Final Application submitted13.01.17.pdf

answers. The data contains quantitative and qualitative components. From quantitative data, either frequency or mean of different e-mobility user patterns was calculated and presented. Quantitative data was condensed in tables.

In general, the current situation is that e-cars are the most used and popular e-vehicles. However, the use of other e-vehicle types is on the rise. At the moment, the main limiting factors in e-mobility for the respondents are restricted range/performance of current batteries, lack of infrastructure in the city/region/country, lack of financial means/support, lack of motivation among consumers, low cost efficiency compared to internal combustion engine vehicles (ICE) and lack of suitable e-vehicle models. According to the respondents, the most important aspects that could accelerate e-mobility related activities were the availability of financial incentives from the local/regional/state authorities, availability of efficient and low-cost information sharing and knowledge access/transfer mechanisms, cross-disciplinary/-industrial cooperation, conditions for fair competition regarding service/technology providers and improvement of local/regional/national legislation. Regarding e-mobility, the following suggestions were elaborated in each area:

**e-cars** – a countrywide charging network is needed together with suitable e-car models and promotion campaigns. Also, different actions could support the use of electric vehicles, such as free parking or the right to use bus lanes.

**e-buses** – the electrical drive is still competing with CNG and hydrogen solutions to be the best in Total Cost of Ownership. Charging should be solved either at the depot or at the end of each line. Availability of e-bus models and delivery time are still limited, but the choice is rapidly increasing over time. The speed of service in case something breaks is currently among the most important challenges for operators.

**e-bikes** – with the appearance of a large variety of e-bikes, the need for 230V charging points emerges in cities although typical owners charge them mostly at home. City rental bikes are the most effective form of promoting e-mobility and chargers are usually integrated in the stands. E-kickbikes have gained remarkable market share in various cities as a lighter alternative to complement classical e-bikes which have pedals and saddle.

**e-logistics** – no suitable vehicles are available so far, but the choice is expected to expand fast. Starting from 2020, several producers will be ready to offer models with a lower Total Cost of Ownership than diesel powered delivery cars. City centers could get rid of polluting and noisy

delivery vans or waste handling vehicles. Currently, the emissions and noise of diesel powered delivery vans are a challenge for citizens, especially in the mornings.

**e-scooters** – four-wheel e-scooters have significant usage potential among the elderly and disabled people in hospitals and cemeteries.

**e-ferries** – the electrical drive could be applied effectively when the travelling distance is comparatively short compared to charging time. Finland and Norway have more experience than other countries in this field, including technical solutions for quick charging at ports.

According to the predictions made by various transport vehicle producers, we will have a lot of electrical means of transport available from 2020 onwards. The current report helps to prepare all stakeholders for this unprecedented and quick development.

A more detailed analysis of different e-mobility solutions, experiences and best practices in the previously mentioned 8 countries is available at https://bsr-electric.eu/materials