eBussed

Action Plan Hamburg

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eBussed
Interreg Europe

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Development Fund

Hamburg | Bezirksamt Hamburg-Mitte

Sharing solutions for better regional policies

General information

Project	eBussed | Building capacities for European-wide e-bus deployment
Partner organisation	Free and Hanseatic City of Hamburg | Borough of Hamburg-Mitte
Other partner organisations involved	Verkehrsbetriebe Hamburg-Holstein (VHH), Hamburger Hochbahn and Hamburg Ministry of Transport and Mobility Transition
Country	Germany
NUTS2 region	Hamburg
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Project website	https://www.interregeurope.eu/ebussed/

Hamburg | Ministry of Transport and Mobility Transition

VHH

HOCHBAHN

Content

Abbreviations

BUKEA	Behörde für Umwelt, Klima, Energie und Agrarwirtschaft (*Hamburg Ministry of Environment, Climate, Energy and Agriculture*)
BVM	Behörde für Verkehr und Mobilitätswende (*Hamburg Ministry of Transport and Mobility Transition*)
HHA	Hamburger Hochbahn AG
PTO	Public transport operator
SNH	Stromnetz Hamburg GmbH
VHH	Verkehrsbetriebe Hamburg-Holstein GmbH

1. Introduction

This eBussed Action Plan for the City of Hamburg is the core output of the Interreg Europe project. The action described herein aims to improve the governance of measures to be implemented under the Hamburg Climate Plan (management of the policy instrument). It has been inspired by the knowledge exchange and capacity building during phase I of the eBussed project; namely, the good practice from Utrecht (NL) about their fire safety measures for the bus depot Westraven.

The Climate Plan defines four transformation paths to achieve the climate goals, with a package of measures annexed to each path. Lessons learnt from the eBussed project will play a vital role in managing some of those measures.

2. Policy context

Climate change mitigation through a rapid and wide-ranging reduction of climate-damaging emissions caused by human beings is one of today's most important tasks globally. Every effort must therefore be made to reduce greenhouse gas emissions and to protect people from the consequences of major changes in the climate. With its climate plan, Hamburg has initiated the necessary measures over the coming years so that citizens can continue to live in a city that is worth living in, economically successful and affordable, a large metropolis that makes its contribution to managing climate change. The climate plan is also aimed at pressing ahead with the necessary adaptation process in order to prepare the city for the impacts of climate change.

The Hamburg Senate is pursuing a climate policy not just as an aim in itself. Both the rapid and wide-ranging reduction in greenhouse gas emissions and adapting the city to the climate changes which can already be detected, is a key task in the interests of Hamburg's citizens including future generations.

It is clear that the transformation process to overcome an economic and social model based on fossil resources will cause considerable changes as well as burdens and costs. Hamburg, like all local authorities and states, will not be able to bear the envisaged financial challenges but will be reliant on support from the Federal Government.

It must be remembered that, both on an international scale and from an individual viewpoint, the higher the income and wealth, the greater the average greenhouse gas emissions.

In a city like Hamburg in particular, neglecting climate protection can cause huge additional problems in the future, whereas a committed and ambitious approach will result in increased competitiveness and economic strength, including with a view to future markets.[1]

This Action Plan aims to impact on the Hamburg Climate Plan (2019).

The Free and Hanseatic City of Hamburg is a City State, and – at European level – both, a NUTS 1 and NUTS 2 region. The Hamburg Climate Plan is a regional development policy and thus the most authoritative document with regard to climate protection.

In 2007 Hamburg resolved its first Climate Action Plan and introduced a range of measures for climate change mitigation based on this. Following this, the Senate (state government) adopted the Climate Master Plan in 2013. In December 2015 the Senate adopted the Hamburg Climate Plan which combined the findings and challenges of climate change mitigation and those of adaptation to the effects of climate change. The first revision of the Hamburg Climate Plan further develops the goals and the portfolio of measures. It also presents the status of activities in Hamburg and the changes to the framework conditions.

The revision to the Climate Plan is divided into two parts. The chapter, "Climate report for Hamburg", presents the development in Hamburg's CO_2 emissions based on the 2017 consumption account by the

[1] First revision of the Hamburg Climate Plan (2019), 2-3.

Statistikamt Nord (northern statistics office). The implementation status of the goals agreed in the 2015 Climate Plan are also presented.

The chapter, "Further development of the climate strategy", explains how the Hamburg Senate plans to further develop its activities in the fields of climate change mitigation and climate adaptation over the next few years.

In the 2015 Climate Plan, the Senate undertook to halve the CO_2 emissions by 2030 compared to the 1990 base year, and to reduce them by at least 80 per cent by 2050.

In the light of more recent findings on the global development of climate change by the Intergovernmental Panel on Climate Change, these goals are no longer adequate. The Senate therefore found it necessary to revise the voluntary commitment from 2015. In this it was guided by the goals adopted by the German Federal Government at national level to reach the 1.5°C target. **The Senate has therefore set the following new CO_2 reduction targets: Hamburg will reduce CO_2 emissions by 55 per cent by 2030 compared to the 1990 base year. By 2050 the city aims to reduce emissions by at least 95 percent in order to achieve climate neutrality.**

Based on these across-the-board voluntary commitments, with the revision of the Climate Plan, the Senate has set out additional sector-specific targets and has charged the sectoral ministries with implementing the necessary measures. Regular controlling of all ministries ensures that, if the targets are not met, suitable readjustment measures will be taken. It should be noted that, with a long-term process, the desired CO_2 reduction cannot at present be predicted with certainty for all measures. The effectiveness of the measures also requires to be constantly monitored and readjusted if necessary. Lastly, further technical progress, research findings, and scaling of what are initially only pilot projects or those started on a small scale will mean that additional effects may arise which cannot be specified at present.

Added to this are the climate change mitigation measures agreed by the Federal Government whose impact on Hamburg cannot be assessed at present. The Senate therefore constantly updates and develops the relevant target values and measures as part of the revision of the Climate Plan.

The four sectors which the city identified as the originators of emissions are:

- Industry
- Trade, Commerce and services (TCS)
- Private households (PHH) and
- Transport.

The table below shows the reduction targets for each of these sectors:

Sector	**As at 1990** (in 1,000 t)	**Target 2030** (in 1,000 t)	**CO_2 reduction requirement 1990-2030** (in 1,000 t)	**CO_2 reduction requirement 1990-2030** (in %)
PHH	4,823	1,599	3,224	-66.9
TCS	4,537	1,477	3,060	-67.4
Industry	5,473	2,991	2,482	-45.4
Transport	5,872	3,251	2,621	-44.6
Total	**20,705**	**9,318**	**11,387**	**-55.0**

Table 1: Sectoral reduction targets, based on the Wuppertal Institut Scenario, 2017

Transformation paths have been developed in order to achieve the climate goals specified in the revision, including the sectoral goals. These transformation paths combine the infrastructure measures with the necessary adaptations to the legal framework and additional funding instruments. In order to create a legal basis for the climate policy goals and instruments as well as further important regulatory provisions, the Hamburg Climate Protection Act has entered into force in February 2020. This legislation places the Climate Plan itself on a legal basis and creates a regulatory framework.

The measures required to achieve the CO_2 reduction targets have been described in the **Transformation Paths of Heat Transition including Building Efficiency, Mobility Transition, and Economy**. In addition, the **Climate Adaptation Transformation Path** describes the process for developing and implementing the measures for ensuring quality of life, the operational capability of the urban infrastructure, and the avoidance of climate-related damage.

There are numerous interdependencies between the different transformation paths. Interdisciplinary and cross-sectoral efforts are required in order to exploit synergies and avoid conflicts. It is therefore crucial that Hamburg achieves its climate goals across the board. Irrespective of the responsibility of the individual sectors, the Senate carries overall responsibility for achieving the goals defined in the Climate Plan. The Senate therefore aims to win over all the relevant stakeholders from both the public and private sectors and from civil society for appropriate forms of cooperation.[2]

Annexed to the Hamburg Climate Plan are four packages of measures analogue to the four transformation paths.

Relevant for this Action Plan is the package of measures related to mobility transition in the respective transformation path. There is a general paradigm shift from demand-oriented to supply-oriented public transport services. Among others, the package foresees a programme to improve the (public transport) bus system, a growing zero-emission bus fleet and new bus depots hosting the growing and electrified fleet. All of this will be implemented in phases by the early 2030s.[3]

An intermediate Climate Report was envisaged for late 2021 but has been put on hold. This status quo report about what measures have contributed to what extend to achieving the climate goals is now expected in the second half of 2022[4]. Hence, what we did during phase I of eBussed and will continue to do during phase II of this project is trying to influence the revision in favour of the overall transition to e-bus operation in public transport and thus improve the future policy instrument. With the action described in this Action Plan we aim to improve governance of measures that are being implemented under the existing Hamburg Climate Plan.

3. Summary of the project

Transitioning from a region with public transportation based on diesel buses to a region with e-bus fleets requires ample expertise in different fields. A wide range of themes must be covered to initiate and support e-bus development. The Interreg Europe **eBussed** project concentrates on the exchange of experience between partner regions at different stages of e-bus operation development, thereby serving regions struggling with this highly technical and fast-developing field. As no partner region has entirely settled their e-bus transitioning path, new ideas, solutions and technologies can still be introduced to their development plans regardless of their current e-bus status.

eBussed supports the transition of European regions towards low carbon mobility and more efficient public transport. It promotes the uptake of e-buses in new regions and supports the expansion of existing e-fleets. eBussed project contributes to the Interreg Europe programme specific objective 3.1 "Improving low-carbon economy policies" by encouraging regions to develop and deliver better policies related to the deployment of e-buses. The project also facilitates the integration of electricity production based on renewables and low carbon electrified public transport. Through new ideas and better policies, the

[2] First revision of the Hamburg Climate Plan (2019), 4-6
[3] First revision of the Hamburg Climate Plan (2019), Annex 3 | Package of measures: Mobility Transition Transformation Path, p. 3
[4] Drucksache 22/6966 (Parliament document)

project promotes both the demand and supply side of electricity from clean renewable sources and the subsequent transitioning towards a low carbon economy.

eBussed engages regions with and without practical experience on e-buses. In addition to this and three other thematic good practice reports, the project will deliver six regional action plans and policy recommendations to be used in partner regions. The project increases capacities and knowledge among its partner regions via a multi-level exchange of experiences and cross-regional pollination of ideas to better support the transition towards fully electrified bus fleets and low carbon mobility.

The consortium formed for eBussed comprises of the following partners:

- Turku University of Applied Sciences, Finland
- Free and Hanseatic City of Hamburg, Germany
- Ministry for Gozo, Malta
- Province of Livorno, Italy
- University of Applied Sciences Utrecht, the Netherlands
- Province of Utrecht, the Netherlands
- South Transdanubian Regional Innovation Agency, Hungary

The main idea in forming the project consortium was to find project partners at different stages of e-bus development to maximize the knowledge exchange potential between project partners. The benefits of having a consortium consisting of regions familiar with e-buses and regions with less experience on the topic is evident. As no single or one-size-fits-for-all solution is currently available for e-buses, knowledge exchange is extremely fruitful to all partners despite their different development stages. In addition, e-bus technologies, charging solutions and business models are in a constant flux of development, with many competing solutions and models currently available, and new, more advanced technologies and solutions continuously entering the market. Consequently, all regions benefit from the experiences gathered and shared before and during the project.

4. Details of the action envisaged

In the project application the approach to achieving an improvement of the Hamburg Climate Plan has been described as follows (extract):

- Stakeholders, especially enterprises, will be provided with support for a better understanding of the scope of the policy instrument and for enhancing cooperation possibilities among the relevant sectors (transport, environment, services and policy makers).

- Guidelines and personal consultancy will be provided for the regional stakeholders to support them in setting up projects and activities in the transportation / urban planning field.[5]

In addition, as described in chapter 2 above, we seek to influence the next revision of the Hamburg Climate Plan. This will be done through continued exchange with relevant stakeholders at local level (CEOs and management staff of public transport operators, politicians).

Regarding the planned update of the Hamburg Climate Plan, we will encourage a clear mention of the necessity of improved fire safety for e-bus depots as well as inclusion of research done into more flexibility in charging the e-buses and the stability of the grid in view of the transition to e-buses. We will continue our exchange with partners in Utrecht (University of Applied Sciences and Province of Utrecht) and at regional level with partners involved at both public transport operators (HOCHBAHN and VHH) as well as with relevant stakeholders at strategic level (Hamburg Ministry for Transport and Mobility Transition BVM and Ministry for the Environment, Climate, Energy and Agriculture BUKEA). This may eventually have an effect on the bigger picture, not only influencing the Hamburg Climate Plan but e.g. inspire other public transport operators in the Metropolitan Region or beyond (through exchange at the level of the German *Initiative Elektrobus*) to follow the good example of the City of Hamburg. Hence, the eBussed project will put in a seed for further development and future improvements in the long run.

ACTION | ***Fire safety in e-bus depots***

Background and link to eBussed project

This action is based on exchange with the project partners from Utrecht (namely the Province of Utrecht and the University of Applied Sciences Utrecht) and their Good Practice *Westraven* on fire safety in relation with the planning and constructing a new e-bus depot. In Hamburg, just like in Utrecht, the development of new e-bus depots is a prerequisite for rolling out electromobility in public transport with growing fleets of battery-electric buses. The Climate Plan states two measures that are relevant in this context:

- New bus service depots
- Expansion of depot infrastructure for growing bus fleet[6]

While in Utrecht the case is very particular, with a fuel depot neighbouring the site of the new bus depot, leading to a higher risk level in case of a fire, in Hamburg, fire safety has certainly been an issue before, but it proved to be helpful to exchange knowledge and insights with partners from Utrecht. Exchange of experience with partners in Utrecht has revealed the importance of involving all relevant partners concerned with any aspect of fire safety. The whole is more than the sum of its parts.

[5] eBussed Application Form, p. 16
[6] First revision of the Hamburg Climate Plan (2019), Annex 3 | Package of measures: Mobility Transition Transformation Path, p. 3

The action described in the following section is about improved governance of planning procedures related to the construction of new bus depots and the expansion of depot infrastructure for the growing e-bus fleets.

Action

The objective of this action is to develop and implement a holistic approach to contingency management.

Both public transport operators, Hochbahn and VHH, will be implementing procedures to involve relevant stakeholders in the planning of fire safety measures. This will include constructional, facility-specific as well as operational and organisational measures (e.g. procedures).

A direct outcome of this action are holistic guidelines for the prevention and fighting of fires in the bus system of Hochbahn, supplementing the sustainable, efficient and future-proof investments in e-buses and their depots. This improves the governance of the transition to emission-free buses in public transport as set in the Hamburg Climate Plan.

Another outcome for both transport operators are newly constructed or retrofitted bus depots for the growing e-bus fleet with high standards of fire safety, e.g. including fire water retaining and a general switch-off.

Activity 1

At Hochbahn this new and improved form of governance will be tested on developing holistic guidelines for the prevention and fighting of fires in their bus system. There will be close collaboration and exchange with the relevant public administration departments.

The entire process for the development of the holistic guidelines will be concluded by the end of Phase 1 of the eBussed project. It will comprise of the following steps:

a. Review of existing emergency plans
b. Consultation with main stakeholders
c. Drafting the holistic guidelines
d. Joint workshop for consolidation of guidelines
e. Implementing guidelines

This pilot for a new governance scheme will be evaluated, adjusted (if need be) and rolled out. The new guidelines will improve the governance of measures being implemented under the Climate Plan.

Activity 2

VHH has installed a health, safety and environment (HSE) officer. This position has been newly created. The tasks of that person were prior done by other members of staff (without that specific expertise) or have been bought externally. However, the learning process has shown that it is more efficient and effective to have an HSE officer in house. The position will improve the coordination, communication, collaboration and consultation processes that are necessary for retrofitting and construction of bus depots taking place in the course of the transition to electric public transport; thus, making a significant contribution to the improved governance of measures implemented under the Hamburg Climate Plan.

Players involved

Hochbahn
City-owned public transport operator, owner of activity no. 1 "holistic guidelines"

Verkehrsbetriebe Hamburg-Holstein
City-owned public transport operator, owner of activity no. 2 "HSE officer"

Fire brigade Hamburg
Will be involved in all activities related to fire safety in e-bus depots, especially with regard to new findings and developments

Borough Office
Responsible for e.g. construction permits

Hamburg Ministry for Transport and Mobility Transition BVM
Responsible for the city's mobility strategy and the transformation path for mobility as well as all measures related to it

Hamburg Ministry for the Environment, Climate, Energy and Agriculture BUKEA
Owner of the Hamburg Climate Plan

Stromnetz Hamburg
City-owned grid provider, involved in issues related to the charging infrastructure and the connection to the city's grid.

Initiative Elektrobus (members are other German public transport operators)
Will be the target group for dissemination and communication as well as national exchange

Public transport operators in Utrecht
Will be the sparring partner for international exchange, mutual dissemination and communication

Timeframe

Both activities related to the action have started. The HSE officer has taken up work to coordinate further procedures. The guidelines will be available in July 2022.

The implementation of the new governance scheme with regard to planning fire safety issues has already started in 03/2022. Part of the action of this plan is to monitor this process, evaluate and adapt if needed. We set up milestones during phase II as follows:

09/2022	Review of pilot process, collection of lessons learnt with Hochbahn and VHH
11/2022	Workshop with stakeholders
06/2023	Validation of adapted governance scheme by group of stakeholders

Costs

The main costs of the action are the working hours of PTO personnel and other administrative units of the City of Hamburg.

There will be external consulting costs for the holistic guidelines (unspecified yet).

Overall, it is expected that the action will save money in the long term as improved governance will be more efficient and the integrated approach will prevent follow-up costs generated through insufficient prior consultation.

Funding sources

This action can be funded with the PTO's own funding.

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HOCHBAHN

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