



Just Transition Platform – Project fiche:

CITY OF OSTRAVA'S HYDROGEN NETWORK: AIMING AT CARBON NEUTRALITY OF THE PUBLIC TRANSPORT

Czechia, Moravian-Silesian Region

This document is part of a series presenting information and lessons learned on policy approaches at national, regional or local level supporting a just transition to a climate-neutral economy. The Just Transition Platform (JTP) assists EU Member States and regions to unlock the support in this transition. Visit the JTP website: https://ec.europa.eu/regional_policy/funding/just-transition-fund/just-transition-platform_en

Member State:

Czechia

Region:

Moravian-Silesian Region

Sector:

Transport

Total project budget (€):

Total budget not identifiable, as the project consists of different aspects that are funded by different sources.

Financing conditions (co-financing rate in %):

n/a

Sources of funding:

Partners' budgets.

EU funding:

European Regional Development Fund (ERDF) (2014–2020) / ERDF (2021–2027): Transport Operational Programme

National funding:

No national support schemes identified.

Regional funding:

No regional support schemes identified, but private funding by Dopravní podnik Ostrava.

Project Duration:

2018 – (ongoing as of 2023)

Responsible managing authority / agency / company:

Ostrava Public Transport Company (Dopravní podnik Ostrava). Agirre Lehendakaria Center.

Summary

The city of Ostrava aims at turning its public transport system into a climate-neutral system. So far, the complete fleet of buses, trams, etc. was turned into climate-friendlier vehicles, e.g. CNG or electric vehicles. Ostrava was the first Czech city that transformed its whole public transport fleet from diesel-powered to eco-friendly vehicles. As a next step, the city plans to switch to hydrogen-powered mobility. This is part of a larger plan that guides the

development of the city. This plan, Strategic Development Plan, foresees five priorities in three main areas: vibrant regional capital; wealth in people; healthy city. For the hydrogen mobility, the city plans to build a hydrogen filling station and the purchase of hydrogen-powered city and cross-country buses. These efforts will be used as a testing environment for future uses of hydrogen in public transport.

Type of activities:

The project can be clustered into two phases: 1) planning phase; and 2) implementation phase. In the first phase from 2018–2020 the preparation of the project took place, including two memorandums between the city and the Moravian-Silesian region on supporting hydrogen in mobility and between the region and Vítkovice Cylinders, the implementing company, on the introduction of hydrogen mobility. The city had the objective to eliminate diesel buses from public transport by 2020, which was achieved in 2021. In the second phase, 2020–2023, it is planned to build a hydrogen station and afterwards start testing hydrogen buses. Various aspects are included, such as: the transformer station, the technological part of the filling, the appropriate number of dispensers, paved areas, roofing, construction and relocation of networks, water management, data communication technology, education and training of employees, publicity of the project. The project is embedded in the ERDF Operational Programme 'Transport' and should ensure the creation of conditions for the wider use of alternative fuels on the road network.

Goals and approach:

The city's endeavours strive to transform at least 60 % of its public transport fleet to zero-emissions vehicles by 2025. With doing so, the approach should ensure that the impact of transport and its emissions on the environment will be minimised. Desirable would be also the emergence of new industrial sectors.

In addition, the objectives also include to increase the passengers' comfort – including the availability of low-floor, climate and information.

In concrete numbers, the public transport should by 2025 consist of at least 60 % emission-free vehicles and at least 35 % of low-emission EURO 6 vehicles. In total, the public transport should have 95 % of zero-emission or low-emission vehicles.

Concerning hydrogen, the city included in its 2018 memorandum that hydrogen is an important part of this journey. Consequently, the city in cooperation with the Ostrava Public Transport Corporation plans to build its first public hydrogen filling station and to start a pilot project on the use of zero-emissions hydrogen-powered buses (short as well as long distance buses).

Important outputs, results or achievements:

Three years after starting the project, the city's transport fleet was completely diesel-free. With the change to low-emissions vehicles the Ostrava Public Transport Company is the first large transport company in Czechia that strives to deploy only climate-friendly vehicles.

One third of the 'old' diesel-fleet was replaced by buses that run on compressed natural gas. Since the first half of 2021, the public transport fleet is completely diesel-free. The deployment of natural gas buses was accompanied with the construction of a CNG filling station – one of the most powerful in Europe.

Based on those outcomes, the second part of the process is now being tackled. With the creation of the hydrogen network, it is expected that, besides the positive environmental impact such as improved air quality, new sectors and consequently new jobs could emerge which would have a benefit for the whole region. In addition, the new modern transport fleet is expected to lead to improved conditions for the users and consequently, an increase in users and thus a decrease of individual transport.

Scalability¹ and transferability²:

Ostrava's hydrogen network initiative is a useful example for other regions and cities across the EU as it showcases how hydrogen can be integrated into the public transport system, leading to a more environmentally friendly transport. Hydrogen is a key aspect of future mobility that can also fuel cross-border cooperation.

The cooperation between private and public entities is another factor that is beneficial for the climate-friendly transformation of the transport system. Such a cooperation is crucial for the implementation of comparable endeavours as it combines policy-making with the practical implementation on the part of the public transport provider.

The implementation of the city's hydrogen network can further demonstrate the usefulness of hydrogen for mobility and in particular for a green public transport and therefore, could yield some interesting insights.

¹ Scalability entails that a policy approach can be adapted to a bigger scale than just the local context.

² Transferability entails that a policy approach can be applicable to a similar setting and replicated.

Key success factors and lessons learnt:

The hydrogen projects in Ostrava are a good example of how public-private cooperation can lead to significant changes in the public transport sector. With the two-step approach (from diesel-powered vehicles over CNG vehicles to a hydrogen-based mobility) a progressively adapted approach is ensured. The project is embedded in the city's development plan that aims at developing the city in a comprehensive way. Moreover, the project receives ERDF-funding, showing that the project is embedded in a larger policy framework. In order to ensure a successful implementation of the hydrogen network, cooperation between researchers and businesses is a key element.

Key challenges:

The project will serve as a testing environment for hydrogen in the public transport sector. The actual impact and potential usefulness as well as the economic cost-benefit ratio remains to be seen.

Tools for supporting economic diversification and reskilling/ upskilling via projects:

- Capitalising on unique regional strengths for innovation.

Central framework conditions³:

Ostrava is the capital of the Moravian-Silesian Region and the third largest city in Czechia. The city has a longstanding history in coal mining and in the steel sector, being coined with the term 'city of coal and iron' in mid-20th century. The last coal mine was closed in the 1990s and since the early 2000s the city and its surroundings have developed in an automotive industries hub, mainly through the establishment of a Hyundai factory in the region. This led to a strong increase of jobs' creation.

The hydrogen network is part of a broader strategy of the city which aims at developing hydrogen technologies in transportation which was

enshrined in a Memorandum of Cooperation between the municipal government and the counterpart of the Moravian-Silesian region already in 2018. In addition, environmentally friendly public transport was also included in the Strategic Development Plan (2027–2023) of Ostrava.

The building of the hydrogen filling station is part of the ERDF Operational Programme 2014–2020 'Transport' under the support for infrastructure for alternative fuels.

Outlook:

Besides establishing the hydrogen station, new hydrogen-powered buses will be acquired. Those will not only serve the city's transport system operated by the DPO, but it is expected that over time, also buses for the regional suburban transport and other passenger vehicles will use this offer as the station should also serve the general public.

³ Framework conditions encompass the institutional, informational and socio-economic factors that determine a given environment (contextual information), e.g. market conditions, access to finance, tax regulation, infrastructure and support.

Partners & contacts:

- City of Ostrava;
- Ostrava Public Transport Company (Dopravní podnik Ostrava).

Website / Social media:

<https://fajnova.cz/projekt/vodikova-infrastruktura-pro-dopravu/> (available in Czech)

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