



Towards the 'green metropolis' through multiple public transport investments

Warsaw, Poland

IN A NUTSHELL

The city undergoes a complete transformation of its public transport system to counteract the high levels of individual transport and consequent air pollution.

Background

Sustainability goals need to be interpreted considering the local context. Since the mid-1990s, Warsaw's environmental policy has gained a lot from EU funded international cooperation, in twin city programmes with Berlin or London, and through city networks. Warsaw was one of the first Polish municipalities to sign the Covenant of Mayors in 2009. Two years later, the city adopted a Sustainable Energy Action Plan (SEAP) to approach energy management on a local level. In 2015, Warsaw adopted a Low-Carbon Economy Plan, listing investments with secured funding, which allow the reduction of emissions and improvement of air quality.

Warsaw and its metropolitan area is a very spread out, rapidly growing and developing city. The high ratio of 9 cars per 10 inhabitants is a great challenge for the city, and this mode of individual transport is even growing in popularity. Excluding pedestrians, the share of public transport in the modal split currently amounts to 60%, while it was 70% a couple of decades ago. In addition to congestion, this results in high air pollution levels, with the transport system being responsible for more than 16% of CO₂ emissions and around 60% of pollutant emissions. Convincing citizens to move by foot, bike or public transport by also modernising the transport system itself is consequently a key challenge of the SEAP.

Development of alternative fuel bus fleet

Half of Warsaw's public transport system - the metro, tram and Rapid City Rail system - had been already running on electricity, while until around 2010 all the city's 1,500 buses were diesel-powered. The municipal bus operator MZA (Miejskie Zakłady Autobusowe) decided to invest substantially in a bus fleet that reduces emissions of pollutants and operates on modern technologies.

As a start, MZA purchased four 18-meter hybrid Solaris buses in 2011. In 2015, 35 liquefied natural gas buses (LNG) joined the fleet. From 2018, it will be completed with 80 additional compressed natural gas (CNG) buses.

It needs to be mentioned here that Poland used to be mostly dependent on Russian gas supplies. With the new gas seaport of



Warsaw tram stop

WARSAW



<p>Population: 1.7 million</p>	<p>Area 517 km²</p>
<p>Signatory to the Covenant of Mayors since: 2009</p>	<p>CO₂ emission reduction target: -20% by 2020</p>

Świnoujście, Poland can now secure its gas supply more independently and more gas buses are envisaged for Warsaw in the future

Additionally, MZA invested in electric buses. Thanks to several purchases in 2014, 2016 and 2017, Warsaw now runs a total of 30 12-meter purely electric buses. Besides environmental benefits, significant savings in operating costs are a positive effect of the investment in electric vehicles. Since 30% of Warsaw bus lines are served by private operators, with sustainability criteria included in the contracts, these external companies will provide clean buses as well, starting from a batch of 50 hybrids.

In accordance with the 'C40 Clean Bus Declaration' Warsaw signed in 2015, MZA shall operate at least 130 hybrid and electric buses by 2020. To complete this mission, Warsaw applied for the EU Operational Programme 'Infrastructure and Environment' in 2016 and signed the resulting funding agreement in 2017. While the first 30 electric buses have been entirely financed with MZA's budget, the additional 130 18-meter buses (together with associated infrastructure, including 19 aerial chargers) will be acquired before 2020 with the assistance of EU funding. The total cost of this project amounts to €99 million, including €42.7 million of EU funding. The overall reduction of CO₂ on-road emissions resulting from this project will equal 135,200 tonnes over 10 years of operation.

In 2017, the City of Warsaw, represented by MZA, also joined the governmental programme on development and construction of a new electric bus in Poland, which may provide Warsaw with additional clean vehicles before 2023.

Improvements for tram, train and metro systems (2007 to 2016)

Besides the replacement of the bus stock, Warsaw's modernisation of the public transport system also puts an emphasis on mass rail transport, conducting related investments with the assistance of EU funding. The city built 9.5 km of tram routes and renovated 54 km of existing tracks. The municipal tram company has more than 700 trams at its disposal, including more than 300 recently purchased modern low-floor vehicles.

Furthermore, 35 new metro trains approach 11 newly established stations on an additional 10.5 km of new lines. The metro's transportation speed could be increased to 80 km/h.

Pedaling through the city

In 2012, Warsaw launched the 'Veturilo' bike sharing system. As of the end of 2017, the system encompassed 5,100 bikes and 355 stations. An additional 100 electric bikes, accessible at 10 stations, can be rented. While around 2007 the modal share of bikes was 0.4%, it has now climbed up to an impressive 5%. With a total length of almost 500 km, it will be the largest bike lane network in any Polish city. The city plans to develop further in the next decade, including bike lanes connecting Warsaw with adjacent municipalities.

USEFUL LINKS

- ▶ Warsaw Covenant profile: <https://bit.ly/2JMFIly>
- ▶ Warsaw's SEAP: <https://bit.ly/2IVikVK>



KEY FIGURES

- 9 hybrid Solaris buses
- 35 LNG buses
- 80 CNG buses
- 12 EV buses
- 160 EV buses running by 2020 by the municipal operator, with expected CO₂ emission reduction of 135,200 t over 10 years of operation
- 311 modern low-floor trams
- 11 new metro stations from 2007 to 2016
- 5100 bikes and e-bikes in the bike sharing system
- 1100 km of new bike lanes by 2023
- 5% of bikes in the modal share, compared to 0.4 in 2007



FINANCING THE PROJECT

- + **Financing source(s):**
Municipal company's budget for 149 alternative fuel buses. In addition, 130 electric long buses will be acquired with EU funding from Structural Funds. Despite these significant investments, ticket prices, which are heavily subsidised from the city's budget, did not increase significantly.
- + **Total amount:**
Bus fleet renewal: €99 million, including €42.7 million of ERDF.



CONTACT

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