

Beyond Best Practices Briefing

Closing the transportation gap in Romania

Raul C2Celsius, Romania¹

June 2023

The Romanian transport sector risks getting caught in a trap of its own making. Between 2000 and 2019, the transport sector's emissions jumped by 139%, mainly due to increasing numbers of cars at the expense of public transport. As emissions continue to rise, a lack of clear goals and corresponding measures will mean Romania may miss its emissions target of reducing emissions in the sectors covered by the Effort Sharing Regulation by almost 13% between 2005 and 2030. Of course, the inverse is also true. If such measures are implemented, Romania can meet its EU goals, support economic growth, and boost domestic employment.

Smart investments today can build the infrastructure of tomorrow. Hydrogen and night trains, low emission zones (LEZs), and railway electrification provide effective ways for Romania to grow its economy, improve mobility, and meet its climate targets.

By looking at international good practices, we can apply proven methods to the Romanian context. This brief lays out the state of Romania's transport sector, with a focus on existing policies and the drivers of the country's emissions. From there, international good practices deemed as particularly fitting to Romania's specific context are expanded on.

¹ Ed. Climate Analytics, 2Celsius is solely responsible for content.

Main findings and recommendations

1. Romania's transport emissions are growing faster than in any other sector, mostly due to rising car use. Prioritising rail will allow Romania to meet its EU climate obligations while guaranteeing mobility and economic growth.
2. At the moment merging emission reduction goals with general transport governance is haphazard. Sectoral targets are weak and road infrastructure prioritised to the detriment of other modes of transport.
3. Unsustainable planning has caused Romanian cities to become clogged with traffic, with Bucharest the seventh most congested city in the world. Supporting public transport will be critical to creating liveable cities and sustainable economic growth.
4. Hydrogen trains represent an affordable, zero-emissions form of transport for Romania's remote and mountainous areas, when electrification is not a viable option.
5. Night trains have struggled to keep up with aviation due to an uneven regulatory playing field. Reforming contract models and upgrading domestic and international night trains will increase uptake and integrate Romania with other European countries.
6. Romanian cities consistently exceed EU maximum air pollution levels. Low emission zones are a cost-effective way to reduce congestion and emissions, take a burden off the health sector, and support greater public transport use and EV adoption.
7. Railway electrification will be critical to Romania meeting its decarbonisation targets. Priority should be given to lines which are used the most and suffer from the most speed restrictions, lines in urban areas, and those that connect Romania with surrounding countries.

Transport governance

Three core documents lay out the Romanian government's transport strategy until 2030. Within this section, a brief summary of each plan is presented.

The National Energy and Climate Plan (2021-2030): Despite being the transport sector's main climate related document, the NECP does not provide a detailed description of its proposed measures, nor does it explain how it plans to implement the measures. There is also no sectoral emissions reduction target. Nevertheless, the NECP's headline target is to increase the share of renewables in the transport sector to 14.2%. Key measures to achieve this are:

- Increasing rail passengers through investments in equipment and infrastructure.
- Promoting EV uptake through subsidies and tax reductions for new EV purchases
- Rolling out e-mobility infrastructure and fostering investments in alternative fuels, including biofuels and natural gas

General Transport Master Plan (2016-2030): The Master Plan's stated objective is to develop efficient and sustainable transport infrastructure. This primarily involves

improving connectivity, modernising rail infrastructure, and growing passenger and freight volumes by ship as well as air. Although the plan pays homage to environmental objectives, these are vague and devoid of any clear targets.

Recovery and Resilience Plan (2021-2026): This plan was required under the EU's Recovery and Resilience Facility, and consists of major infrastructure investments expected to create 90,000 jobs.² EUR 3.9 billion is to be directed to modernising and electrifying the railway system, while EUR 1.8 billion will improve transport infrastructure in urban areas.

Transport emissions: the key drivers

There are a number of drivers that facilitate an increase in emissions from the passenger transport sector. The major ones are listed below.

Rising income: Higher incomes make cars more affordable and allow people to move to the suburbs, further increasing the necessity of cars.

Personal attitudes: Cars allow independence and in Romania – as in many other Eastern European Countries – are associated with higher status. For some, cars are simply preferred over public transport, and in these cases EVs are to be encouraged. However, many Romanians use public transport and are open to using it more. For these citizens, the response should be to provide high-quality public transport which in turn can significantly cut Romania's emissions.

Unsustainable spatial planning: Bucharest is the seventh most traffic congested city on the planet.³ This has been driven by poor planning practices which encourage cars to the detriment of other forms of transport, thus causing even greater reliance on cars. Ergo, planning causes a "circle of congestion". The longer workers are stuck in traffic, the less productive the economy.⁴ Cleaning up Romania's traffic will therefore cut emissions and grow the economy.

Weak & contradictory policies: Transport goals at times contradict environmental goals. For instance, investments in road infrastructure aim to increase car numbers, often at the expense of public transport. As mentioned already, this then leads to a

² European Commission, "Recovery and Resilience Plan for Romania," European Commission, 2022, https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/recovery-and-resilience-plan-romania_en.

³ TomTom Traffic Index, "TomTom Traffic Europa," Tomtom, November 11, 2022, https://www.tomtom.com/de_de/navigation/maps-services/traffic-info/europe/.

⁴ Marcel Ionescu-Heroiu, "Metropolitan Development Is Central to Romania's Economic Development," World Bank, 2016, <https://blogs.worldbank.org/europeandcentralasia/metropolitan-development-central-romania-s-economic-development>.

circle of congestion. Rational transport policy integrates Romania's economic interests with its environmental targets, rather than ignoring one or the other.

Policy recommendations

Railway electrification

In decarbonising the transport sector, railway electrification is an EU priority. In 2020, 37% of Romanian railways were electrified, well short of the EU average of 56%.⁵ Romania slips further down the list in terms of recent effort; only 75 km were electrified between 2007-2020, compared to the EU average of 329 km. At the same time, almost 10,000km of railways need renewal, causing reduced speed limits and demanding limited government resources.⁶

As a result, priorities must be balanced. Given the cost of electrification, priority must be placed on the lines which are used the most and suffer from the most speed restrictions. Although the Romanian government has planned to electrify 482 km of lines by 2030,⁷ the likelihood of implementation appears low due to the still heavy emphasis on road transport.

Likewise, focus should be placed on electrifying the "last kilometre" of rail connections in urban areas as well as connecting Romania with surrounding countries to ensure uninterrupted rail freight and passenger traffic. To remove bottlenecks and harmonise Europe's rail system, the European Interconnection Mechanism finances improvements to the TEN-T network. Romanian authorities are encouraged to cooperate with EU bodies to fund railway electrification.

Hydrogen trains

In some parts of Romania, electrifying railways is not feasible. In these areas, hydrogen trains can replace diesel ones. Hydrogen trains emit zero carbon, are three times more efficient than ICE trains, and can be deployed on any track, anywhere.

Hydrogen trains are already being piloted in Romania and have caught on in other European countries, notably in the German and Austrian mountains. In Romania's

⁵ Statista, "Electrified Rail Network in Europe, by Country," Statista, 2022, <https://www.statista.com/statistics/451522/share-of-the-rail-network-which-is-electrified-in-europe/>.

⁶ European Parliament, "Romania's General Transport Master Plan and Rail System: In Depth Analysis." (LU: Publications Office, 2015), <https://data.europa.eu/doi/10.2861/905564>.

⁷ RailTech, "Romania to Study First High-Speed Railway and Revamp Rail Infrastructure," RailTech.com, 2022, <https://www.railtech.com/infrastructure/2022/04/28/romania-plans-to-study-first-high-speed-railway-and-revamps-rail-infrastructure/>.

remote and mountainous regions, hydrogen trains are the cheapest zero-carbon mode of transport.⁸

A range of European companies currently develop hydrogen trains, namely Alstom, Stadler, CAF and Siemens. Some of these companies are already in talks with Romanian authorities to expand Romania's hydrogen train fleet. To support this expansion, hydrogen refuelling stations will be necessary. Between 1,470 MW and 2,350 MW of electrolyser capacity will be needed for industry and transport by 2030.⁹ To support this, between 3 and 4.5 GW of additional renewable capacity will be required.

Night trains

Night trains face an uphill battle in terms of competing with air travel. Airlines are exempt from kerosene taxes and from VAT on international tickets. Unlike airlines, trains must pay a toll on every kilometre and emerging companies struggle to operate night trains under current market conditions.

Night trains represent one of the most important investments to improve mobility and reduce emissions. Recent decades have seen a dramatic drop in the number of night train, a direct result of poor investment and market conditions.

As night trains are already considered in public service contracts, the state can approach the issue through two contracting models. One involves requiring private contractors to provide a minimum volume of night train services, e.g. in terms of annual seat-kilometres. The second contracting model is for Ministry of Transport to offer the contractor a fixed compensation per passenger carried, or a percentage increase on passenger revenue, providing incentives to maximise either volume or revenue.

A range of core international night trains can be improved, in line with policies from other EU countries. Investments in lines connecting Bucharest with Vienna, Prague, Warsaw, and Thessaloniki can be improved. Such services will further integrate Romania with its EU neighbours, contributing to business, tourism and major emissions cuts.

As night trains do not need infrastructure upgrades and represent a direct alternative to flying, they provide the Romanian government with a cost-effective way of cutting out unnecessary flights without any sacrifices to mobility. Glamourising night trains is recommended through speeding up travel times and making them more comfortable to increase uptake.

⁸ Energy Policy Group (EPG), "Clean Hydrogen in Romania – Elements of a Strategy" (Bucharest: Energy Policy Group, 2021), <https://www.enpg.ro/wp-content/uploads/2022/02/68-Clean-Hydrogen-in-Romania-Study-1.pdf>.

⁹ Mihai Balan, "A Pathway to Romania's Clean Hydrogen Future," CEENERGY News, 2022, <https://ceenergynews.com/voices/a-pathway-to-romania-s-clean-hydrogen-future/>.

Low emission zones

Romanian cities are traffic congested and consistently exceed EU maximum air pollution levels. Around 14,000 Romanians die every year as a result of traffic related air pollution.¹⁰ LEZs can mitigate this issue by reducing emissions-intensive cars from cities. LEZs should not be standalone initiatives but complemented by public transport investments and support for EVs.

Bucharest is currently piloting an LEZ which imposes a pollution tax on emissions-intensive cars but stops short of banning them.¹¹ Strengthening the project to prevent dirty cars from entering city centres will allow the greatest health co-benefits. LEZs reduce congestion and emissions, take a burden off the health sector, and support greater public transport use and EV adoption, making them a cheap way for Romania to achieve a range of health and environmental targets.

Conclusion

A range of options exist for Romania to reduce transport emissions while ensuring mobility, economic growth and improved quality of life. This begins with properly integrating environmental goals with general transport governance. Strengthening Romania's neglected rail infrastructure will be critical. This can be achieved with hydrogen trains for remote areas, night trains for long-distance journeys, and electrification for as many lines as possible, with frequently used lines the priority. Alongside railways, LEZs are presented as a cost-effective way to reduce congestion in cities and facilitate a transition to EVs and public transport.

¹⁰ European Court of Auditors., Air Pollution: Our Health Still Insufficiently Protected. Special Report No 23, 2018. (LU: Publications Office, 2018), <https://data.europa.eu/doi/10.2865/46457>.

¹¹ Trans.INFO, "În București va fi înființată o zonă cu emisii reduse," Trans.INFO, 2022, <https://trans.info/ro/in-bucuresti-va-fi-infiintata-o-zona-cu-emisii-reduse-291654>.

Supported by:



on the basis of a decision
by the German Bundestag



This project is part of the [European Climate Initiative \(EUKI\)](#) – a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action.

The opinions put forward in this publication are the sole responsibility of the author(s) and do not necessarily reflect the views of the Federal Ministry for Economic Affairs and Climate Action (BMWK).

