



Tallinn Transport-Sector CO₂ Simulation and Policy Recommendations.

English Summary of the Estonian-Language Report.

This document summarises the Estonian-language report Assessment of Tallinn's CO₂ Footprint and Proposals for Its Reduction, prepared by TalTech students under the supervision of Janika Laht in 2025. The work was carried out within the framework of the Interreg BSR CommitClimate project and documents the practical use of the CommitClimate / Interreg CO₂ simulator for analysing Tallinn's transport-sector emissions and possible reduction measures.

Executive summary

The aim of the work was to assess the current CO₂ footprint of Tallinn's transport sector and to simulate the potential impact of selected transport-policy measures up to 2050. The analysis focused on transport because it is identified as one of the key emission sources in Tallinn and an important sector for achieving local and national climate objectives.

The work was developed in cooperation with Tallinn municipal specialists. Local transport-sector data and information on existing policy directions were used to prepare the simulation baseline and select relevant policy scenarios. The cooperation helped ensure that the tested scenarios reflected Tallinn's real planning context and policy interests.

1. **Three transport-policy scenarios were analysed: Increase in cycling / modal shift.** The scenario assessed the effect of shifting part of private and public transport trips to cycling.
2. **Replacement of Tallinn public transport operator Tallinna Linnatransport (TLT) diesel buses with biomethane CNG buses.** The scenario assessed the effect of replacing Tallinn public transport diesel buses with biomethane/CNG buses, in line with existing public transport transition plans.
3. **Increase in the share of electric vehicles in private transport.** The scenario assessed the impact of increasing the share of electric vehicles in private transport.

The results show that modal shift from private transport to cycling provides a strong direct reduction potential. The simulation estimated that shifting from private transport to cycling could save **64.33 t CO₂ per year by 2050 per relative percentage increase**, while shifting from public transport to cycling could save **36.69 t CO₂ per year by 2050 per relative percentage increase**.

The replacement of TLT diesel buses with biomethane CNG buses showed significant short-term reduction potential. The simulation estimated savings of **7,657 t CO₂ per year by 2030** and **3,656 t CO₂ per year by 2050**. The decreasing effect over time is linked to the simulator assumption that Tallinn's transport demand continues to grow.

The increase in electric vehicles showed a smaller immediate effect, mainly because the current share of EVs in Tallinn's private transport is still low. However, the report notes that EV uptake remains strategically important in the longer term, especially if electricity production becomes increasingly decarbonised and charging infrastructure expands.

The main recommendations are to continue developing safe and convenient cycling infrastructure, support the transition of public transport towards lower-carbon fuels, expand EV charging infrastructure and use scenario modelling to assess policy options before implementation.

The report also identifies strengths and limitations of the simulator. Its strengths include the use of local data, the possibility to compare different policy scenarios and the ability to assess both short- and long-term impacts. Its limitations include dependence on input data quality, limited modelling of behavioural change, assumptions related to electricity emission factors and the fact that infrastructure requirements are not automatically included in the simulation results.

This material should be understood as supporting evidence of Estonian follow-up work, practical testing and application of the CommitClimate CO₂ simulator in the Tallinn transport-sector context. It should not be considered equivalent to a formal SECAP/SEAP, a new or updated municipal energy action plan, or a full GoA 2.2 scenario-based assessment report.

Tallinn public transport operator Tallinna Linnatransport (TLT)