Avoid-Shift-Improve Policies for Reducing Polluting Emissions and Greenhouse Gases from Road Freight Transport in Italy

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Abstract:

The decarbonization of road freight transport is essential to achieve sustainability goals and meet the main climate and decarbonization targets. The freight sector, characterized by complex supply chains and fierce cost-based competition, faces challenges as a "hard-to-abate" domain. This study explores the Italian road freight transport decarbonizing trajectory, also proposing some Avoid-Shift-Improve (ASI) strategies to reduce greenhouse gas (GHG) emissions. The research is based on two main aims: i) estimating current (2023) and reference (2005) freight demand and their corresponding GHG inventories; ii) defining ASI-based "business-as-usual" scenarios for 2030 and assessing their related GHG emissions. Two forecasting scenarios — "optimistic" and "prudential" — are developed to estimate GHG emission trajectories and assess the feasibility of achieving EU climate goals. Findings indicate that without additional policy interventions and comprehensive ASI measures, Italy is unlikely to meet the ambitious targets set by the European Commission. The study emphasizes the need for a coordinated, data-driven approach to ensure a sustainable transition for the road freight sector.

Keywords:

Transportation planning, Avoid-Shift-Improve (ASI) framework, decarbonization, greenhouse gas emissions, road freight transport.