**LowCarb RFC**

**European Rail Freight Corridors going Carbon Neutral**

*Der Weg europäischer Güterverkehrskorridore zur Kohlenstoff-Neutralität*

**Funding:** National (Germany)

**Duration:** Sep 2015 - Aug 2018

**Status:** Complete

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**Objectives:**

The LowCarb-RFC study is motivated by a number of research projects funded by the European Commission. All of these studies investigate ambitious scenarios for shifting transport demand from road to rail for better quality of life, energy efficiency and greenhouse gas reduction. However, all of these studies remain with rather general recommendations and solutions without really touching the core of the problem: (1) what do these enormous changes really mean for regions and their transport systems and (2) Whether and how can we reform current institutions to undertake the necessary action. This study seeks to answer both of the questions at the example of major European port hinterland flows crossing the German state of Northrhine-Westphalia (NRW).

**Methodology:**

To approach the fundamental questions on how to reform the transport sector towards more sustainability, and thus to comply with the ambitious mode shift, climate and safety targets set by the European Commission’s 2011 Transport White Paper, the LowCarb-RFC study applies the following working steps and methodologies.

1. **State of the Art Assessment.** WP1 seeks for gathering and analysing the current state of re-search on future scenarios for visions in the rail freight sector on methods to assess and quantify these scenarios and on existing stakeholder discussion and dissemination platforms for rail freight solutions.

2. **Models, Data & Projections:** WP2 develops a baseline scenario which will most likely become real in case policy, technology and markets develop without major surprises. It will specify the various modelling tools which are used to assess transport market developments: the ASTRA system dynamics model run by Fraunhofer ISI and M-Five, the Logistics Chain Model by the University of Antwerp, the local logistics assessment method by Fraunhofer IML and other impact assessment methods required throughout the project.

3. **Scenario Pro Rail.** WP3 develops the target vision and scenario for an international European freight market largely based on rail. This involves a complete technical and organisational modernisation of the rail sector, as well as a detailed concept for a supporting policy environment by 2050. The WP concludes with an environmental impact assessment.

4. **Reforming Railways & Institutions.** WP4 delves into the very details how the Pro Rail Scenario can be realised by focussing on the major barriers towards rail and institutional changes. Short case studies of transition processes in other sectors are conducted, and in-depth consultations with railways, logistics companies, industries and policy bodies within the Stakeholder Participation Platform are performed to identify feasible transition pathways.

5. **Scenario Pro Road.** WP5 goes into an alternative scenario which investigates whether the sustainability targets are achievable despite a marginalisation of the rail freight sector. In this scenario, technical and organisational improvements of road transport, such as autonomous driving, larger vehicles, electrification or alternative fuels will be allowed to a high extent.

6. **Impacts on the Logistics Hub NRW.** This final scientific step shall bundle the results of the Pro Rail Scenario and the Pro Road case and look at their implications particularly for the logistics infrastructure and markets in Northrhine-Westphalia (NRW). It explores investment and de-investment needs, environmental effects and social impacts in the road haulage, railway and inland navigation sector.

7. **Stakeholder Participation Platform.** This work package supports all other activities in the project by enabling continuous discussions with relevant stakeholders from railways and goods forwarding industry. A bi-directional flow of inputs questions, suggestions and comments together with confidential...
discussions in small groups shall ensure that both, science and practice, are benefiting from an open and honest exchange of relevant thoughts and facts. The Stakeholder Participation Platform is run by project partner Transport and Environment, Brussels.

**Other funding sources:** Stiftung Mercator GmbH

Fraunhofer-Institute for Systems and Innovations Research

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**STRIA Roadmaps:** Other specified

**Transport mode:** Rail transport

**Transport sectors:** Freight transport

**Transport policies:** Societal/Economic issues