

PROJECT

OPEUS

Modelling and strategies for the assessment and Optimisation of Energy USage aspects of rail innovation

Funding: European (Horizon 2020)

Duration: Nov 2016 - Oct 2019

Status: Complete

Total project cost: €797,130

EU contribution: €797,130



Call for proposal: H2020-S2RJU-OC-2015-01-2

[CORDIS RCN : 206226](#)

Objectives:

The aim of OPEUS is to develop a simulation methodology and accompanying modelling tool to evaluate, improve and optimise the energy consumption of rail systems with a particular focus on in-vehicle innovation.

The OPEUS concept is based on the need to understand and measure the energy being used by each of the relevant components of the rail system and in particular the vehicle. This includes the energy losses in the traction chain, the use of technologies to reduce these and to optimise energy consumption (e.g. ESSs).

Specifically, the OPEUS approach has three components at its core:

1. the energy simulation model
2. the energy use requirements (e.g. duty cycles)
3. the energy usage outlook and optimisation strategies recommendation

The concept builds on an extensive range of knowledge and outcomes generated by a number of key collaborative projects (e.g. CleanER-D, MERLIN, OSIRIS, RailEnergy, ROLL2RAIL) underpinning the research proposed, ALL of which have been led by OPEUS consortium members. Particularly the tool developed for the CleanER-D project will be used as starting point. Significant complementary work from the academic community will also be used to enhance the activities of the project. Specifically, these previous projects input will be used to:

- Expand and develop the simulation tool (CleanER-D, MERLIN);
- Complete the operational requirements by enhancing the urban duty cycles (OSIRIS);
- Provide a global vision of energy consumption in railways (CleanER-D, OSIRIS, RailEnergy)

OPEUS' ambition is to firmly contribute to the following key areas:

- Understand energy consumption of urban railways;
- Develop a tool to objectively compare technologies and strategies aimed at optimising the energy usage of railway systems;
- Unlock the potential contribution that novel technologies and associated strategies can make to optimising rail energy consumption;
- Share a global vision for how energy is used in railways

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport Shift2Rail - Shift2Rail](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Partners:

SAFT - France

UNION INTERNATIONALE DES CHEMINS DE FER - France

UNION INTERNATIONALE DES TRANSPORTS PUBLICS - UITP - Belgium

UNIVERSITAET ROSTOCK - Germany

STADLER RAIL VALENCIA SAU - Spain

Organisation: Univesity of Newcastle upon Tyne

Address: King's Hate

Zipcode: NE1 7RU

City: Newcastle upon Tyne

Contact country: United Kingdom

Organisation Website: [Univesity of Newcastle upon Tyne](#)

Technologies:

Electric vehicle batteries (and energy management)

Energy generation and harvesting solutions for rail

Development phase: Research/Invention

Vehicle design and manufacturing, Infrastructure, Other

STRIA Roadmaps: specified

Transport mode: Rail transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other