



2nd Stakeholder Workshop

Benchmarking of ferry and RoRo transport for the development of "green corridors" for freight transport

Scandria Project – Ministry of Energy, Infrastructure and State Development Mecklenburg-Vorpommern



Stefan Seum

Stefan Seum Consulting /
Baltic Marine Consult



Introduction



- ◆ Third party funded research project to improve the modelling of ferries (RoPax)* and RoRo-vessels in EcoTransIT World.
- ◆ Funded by the State of Mecklenburg-Vorpommern and the Baltic Sea Region Programme under the Scandria project 2009-2012 (www.scandriaproject.eu, <http://eu.baltic.net/>).
- ◆ Main topic: European “Green Corridors for Freight Transport”.
- ◆ The Supergreen project (<http://www.supergreenproject.eu/>) will evaluate a series of European “Green Corridors” 2010-2013.
- ◆ Stefan Seum Consulting (formerly Öko-Institut e.V.) and Baltic Marine Consult teamed up to conduct the research project. Stefan Seum had developed the ETW methodology for marine vessels.

* The term ferry is used for vessels primarily transporting passengers on scheduled services. Those vessels are technically RoPax vessels, vessels with carrying capacity for passage and roll-on, roll-off freight. The term RoPax is more commonly used for vessels with relevant cargo carrying capacities.

Problem statement and Project goal

- ◆ The modelling methodology for RoPax and RoRo-vessel transport in the current version of ETW is not satisfying.
- ◆ RoPax and RoRo-transport is only modelled as “hidden” sections of roads, using one generic emission factor.
- ◆ Generally, the modelling of RoPax and RoRo emissions is complex, because of the diverse range of operations and special propulsion technologies (i.e. diesel-electric propulsions).
- ◆ Project goal is to provide differentiated emission factors for RoPax and RoRo-vessels and to allow ETW users to hand-select particular RoPax and RoRo-vessels for particular transport links.

Methodology



- ◆ As for other marine vessels, a bottom-up modelling methodology was chosen.
- ◆ Technical and operational parameters, with a focus on vessels operating in the Baltic Sea Region, were analysed.
- ◆ Technical parameters provided the ground for determining the required propulsion energy.
- ◆ Operational and ship design parameters were used to solve questions of allocation.
 - ◆ Allocation between passage and freight (Ferries and RoPax).
 - ◆ Allocation to the net-freight on ferries, RoPax and RoRos.

Findings



- ◆ The strongest correlation is between the travel distance and the fuel consumed per net-tonne-kilometer. Thus, travel distance is used to select an emission factor when ferries and RoRo vessels are “hidden”, i.e. automatically selected by the ETW system.
- ◆ Three vessel types were determined to “hand build” transport strings that include particular RoPax and RoRo links.
(weighted average fuel consumption in parentheses)
 - RoPax, passage / freight dominated (54,9 g/tkm)
 - RoPax, freight dominated (36,2 g/tkm)
 - RoRo, unaccompanied freight (21,4 g/tkm)
 - Truck >32 t, REMOVE 2.7b (25 g/tkm)
- ◆ Thus, RoRo vessels are more fuel efficient per net-tonne-kilometer than trucks. Other RoPax and RoRo vessel links may provide benefits due to shorter routing distances.

Lessons learnt



- ◆ The study significantly improves the modelling of RoPax and RoRo vessels for purposes such as ETW, corridor assessments and environmental logistics planning.
- ◆ It provides average benchmark figures, comparable to other modes of transport. Individual vessels may differ significantly.
- ◆ However, vessel emissions and particularly RoPax and RoRo vessel emissions may be outdated more quickly than others.
 - GHG reduction potential is with 25 – 75% larger than for other modes.
 - New dedicated vessel designs can reduce emissions significantly (e.g. new Rostock – Gedser ferry projected 3-4 times more efficient).
 - Upcoming rules, e.g. new sulphur limits in SECAs.
 - Growth of transport volume on vessels would improve performance.
- ◆ Additional co-operative projects are needed, in order to keep ETW up to date and continuously maintain the ETW database.

Project Consultants



- ◆ Stefan Seum Consulting
stefan.seum@seumconsulting.com
+49/ (0)30 / 7202 3864
- ◆ Baltic Marine Consult
Frank Borrmann
borrmann@bmc-info.de
+49/ (0)381 / 519 35 75