

TRANSPORT & MOBILITY LEUVEN

TREMOVE Contact Group Meeting

21 June 2004

The Maritime Module in TREMOVE

Focus on baseline modelling
(Griet De Ceuster)

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A Specific Maritime Module

- No maritime transport in the demand module
- No substitution between maritime and other modes
- Maritime vessel-kms are modelled, not tkm/pkms
- TREMOVE reproduces maritime emission calculation methodology by ENTEC

ENTEAC, *Quantification of emissions from ships associated with ship movements between ports in the European Community*. Final report to the European Commission, July 2002.

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Geographic coverage

- Irish Sea
- English Channel
- North Sea
- Baltic Sea
- Mediterranean
- North East Atlantic Ocean
- Rest of EMEP

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Ship types in TREMOVE

27 ship types (> 500 ton)

*A11 Liquefied Gas	*A36 Passenger/Ro-Ro Cargo
*A12 Chemical	*A37 Passenger
*A13 Oil	*A38 Other Dry Cargo
*A14 Other Liquids	*B11 Fish Catching
*A21 Bulk Dry	*B12 Other Fishing
*A22 Bulk Dry / Oil	*B21 Offshore Supply
*A23 Self Discharging Bulk Dry	*B22 Other Offshore
*A24 Other Bulk Dry	*B31 Research
*A25 General Cargo	*B32 Towing / Pushing
*A26 Passenger/General Cargo	*B33 Dredging
*A33 Container	*B34 Other Activities
*A34 Refrigerated Cargo	*W11 Other Activities
*A35 Ro-Ro Cargo	*W12 Other Activities
	*W13 Other Activities

5 engine types

- slow speed diesel
- medium speed diesel
- high speed diesel
- gas turbine
- steam turbine

3 fuel types

- marine gas oil
- marine diesel oil
- marine residual oil

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Base line maritime vessel activity

- Aggregated to vkm by ship type per sea region
- Aggregated to port callings per ship type per country
- Yearly growth rate from SCENES (≠ ENTEC)
- Constant fleet composition assumed (= ENTEC)

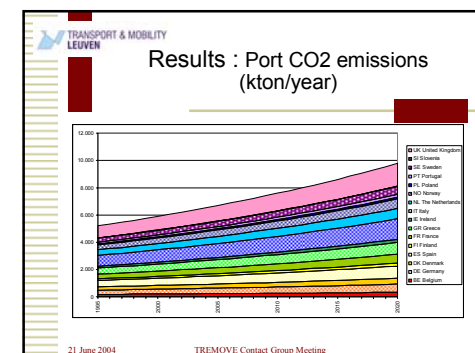
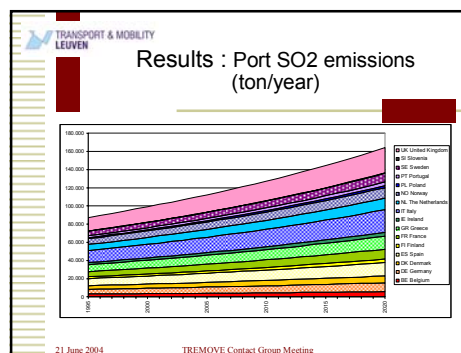
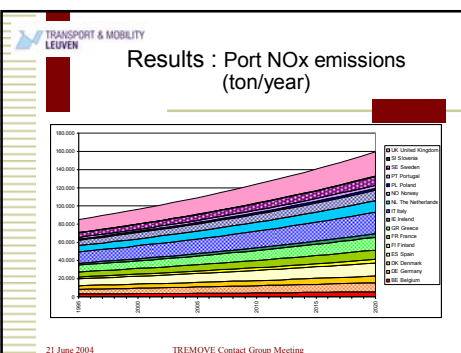
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Maritime port emissions (per country)

- Port emissions = number of port visits * emissions per visit
- Emissions per visit = duration * emissions (g) per kWh * kWh per activity and vessel type, per hour. Both for ME (mean engine) and AE (auxiliary engine)
- Vessel type: vessel(27) / fuel(3) / engine(5) combination.
- Activity: manoeuvring (sea<->dock) or docking
- Sources: ENTEC

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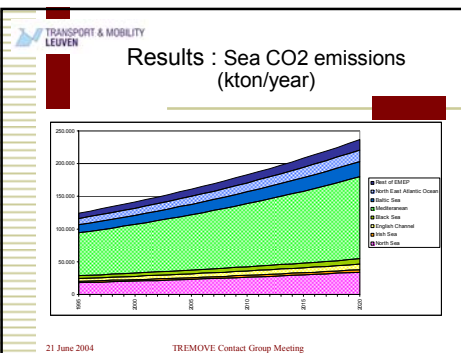
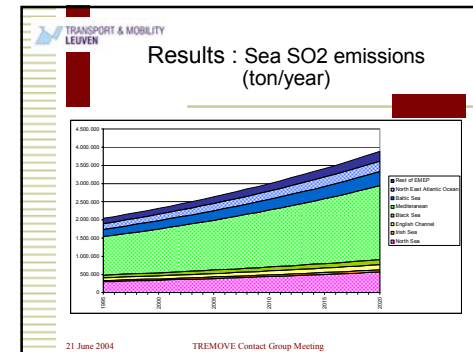
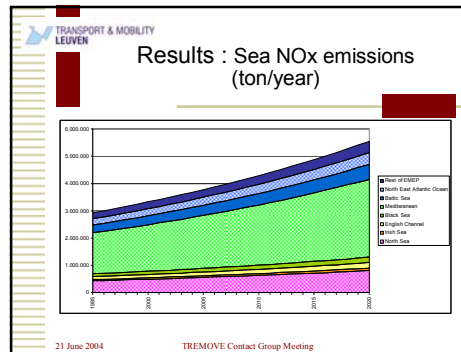


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Maritime sea emissions (per sea region)

- Sea emissions = number of vessel km * emissions per km
- Emissions per km = emissions (g) per kWh * kWh per vessel type.
- Both for ME (mean engine) and AE (auxiliary engine)
- Vessel type: vessel(27) / fuel(3) / engine(5) combination.
- Sources: ENTEC

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Further work on maritime

- Adding ferry activity
 - Data received from ENTEC
- Stakeholder comments and suggestions

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