Engine manufacturers’ considerations on Emissions Reduction in Inland Waterway Transport
Outline

• Engine related CO$_2$ reduction potential

• Current EU approach for
  – GHG and emissions reduction
  – Fuel qualities

• Use of biofuels
Evaluation of the CO$_2$ reduction potential

- Potential to further reduce the fuel efficiency of a standalone engine is restricted
- Trade-off between CO$_2$ reduction and ambient air pollution measures, e.g. lean NOx operation, filter regeneration,…
- Substantial CO$_2$ reduction requires to consider the vehicle and its operation
- Development at United Nations IMO Energy Efficiency Design Index and Energy Efficiency Operational Index (EEDI and EEOI) for certain types of seagoing ships
Current EU emissions reduction approach

• Member states and European Commission are heading for further reducing ambient air pollutants to comply with ambient air requirements according to Annex 2 of 2008/50/EC

• EC DG ENTR Study on actual GHG activities contracted to RPA, results anticipated to be publicly available in May 2012

• CO₂ reporting during engine type-approval: Amendment proposal to 97/68/EC, similar to USEPA GHG reporting scheme
EU fuel quality approach for NRMM

• 10/20 ppm S Gas oil in 2009/30/EC
  – “[…] gas oils intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors and recreational craft […]. From 1 January 2011, the maximum permissible sulphur content of those gas oils shall be 10 mg/kg.”
  – “Member States shall ensure that liquid fuels other than those gas oils may be used in inland waterway vessels”
  – Engine manufacturers request for aligning with EN590 on-highway Diesel fuel specifications was not followed up, even the limited set of specifications for Diesel fuel in Annex II does not apply to NRMM
  – Issues on geographic availability of 10/20 ppm S fuel (National derogations) in EU27

• Gas fuel: Gas engines to be included into a next review of 97/68/EC
Biofuels

• 2009/30/EC
  – Allows Member States placing on the market of Diesel fuel with >7% FAME
  – Encourages CEN “[…] to continue working rapidly on a standard allowing the blending of higher levels of biofuel components into diesel and, in particular, to develop a standard for ‘B10’.”

• Concerns on vessels operating with an ill-defined and broad variety of Gasoil/Diesel/Biodiesel blends which might be incompatible with Stage IIIIB and IV engine and aftertreatment technology
  – Example RCD: <B10 fuel incompatibility with nitrile rubber fuel hoses
Biofuels

• Issues for engine manufacturers
  – Specifications: Clearly defined qualities demonstrated to be compatible with Stage IIIB/IV engine and aftertreatment technology
  – Demonstrated microbial and thermal mid-term stability
  – Availability of consistent qualities across all of EU27

• Other qualities than B7 will require individual manufacturers’ approval
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