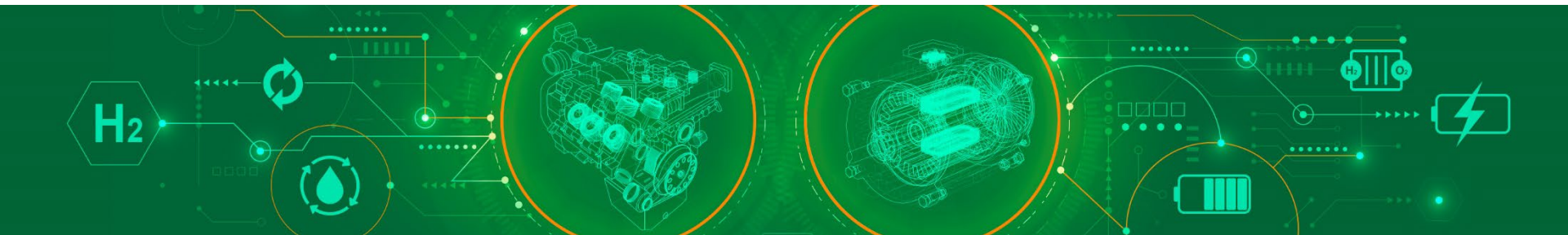


# **EUROMOT observations on type-approval of engines operated on H<sub>2</sub> for agricultural & forestry tractors and non-road mobile machinery**

**GRPE 86<sup>th</sup> session, Geneva, 30 May – 02 June 2022**



# INTRODUCTION

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- EUROMOT has been following closely the proposals for heavy-duty on-highway type-approval of engine operated on H<sub>2</sub> submitted by experts from OICA
- EUROMOT echoes the need for technology-neutral engine type-approval requirements adapted for low and net zero carbon fuels
- EUROMOT has commenced work to identify the changes necessary to facilitate such type-approvals

# PARTICULARITIES OF NON-ROAD SECTOR

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In comparison with heavy-duty on-highway:

- Agricultural and forestry tractor and non-road mobile machinery (hereafter the non-road sector) uses similar technologies, test methodologies & considerations for type-approval of engines

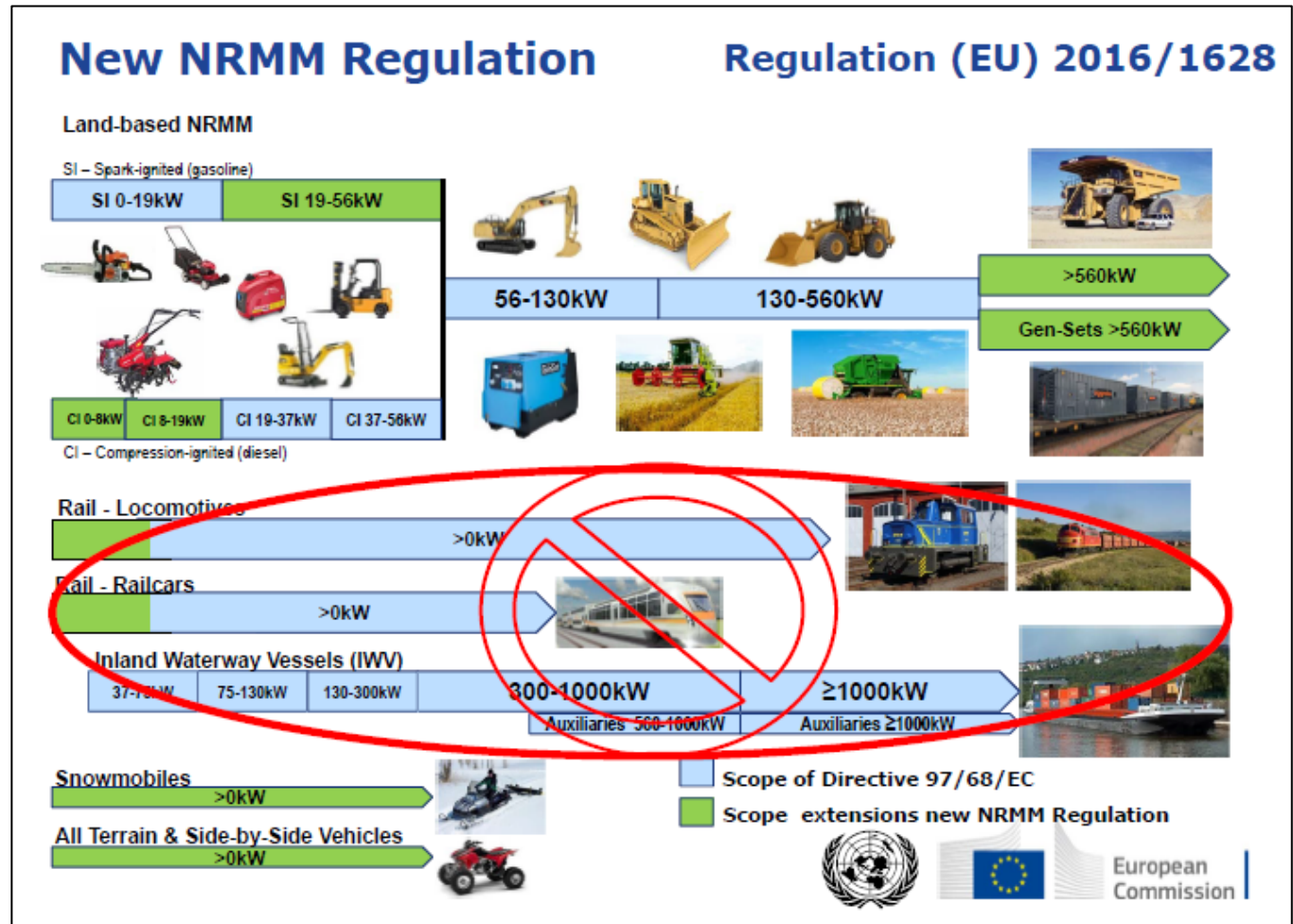
However, it also has:

- A broader range of engine sizes and applications
- Different regulatory structure at UNECE & EU level

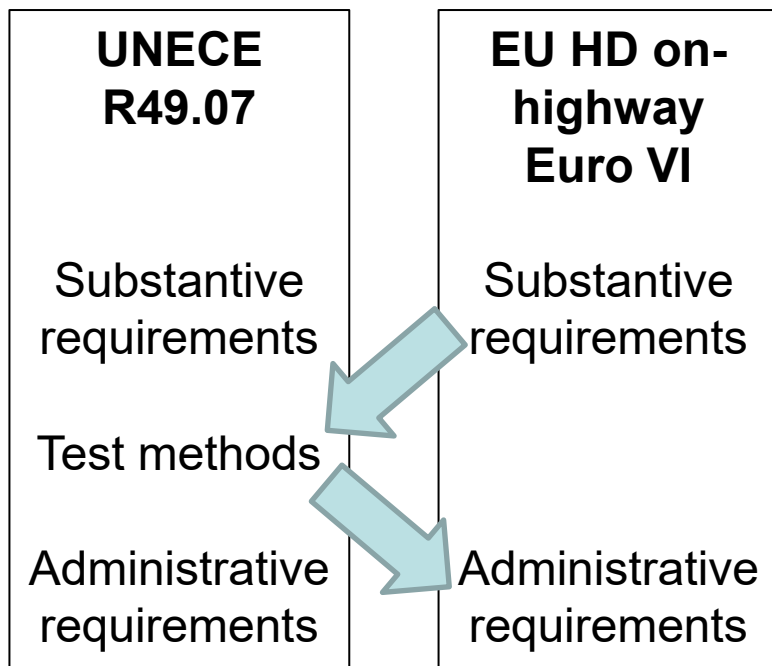
# DIFFERENCE IN SCOPE: EU STAGE V versus R96.05

Rail and inland waterway applications are in scope of EU Stage V but outside scope of UNECE WP.29

Marine sector may also utilise different low/net zero carbon fuels (ammonia, methanol, DME, ...)

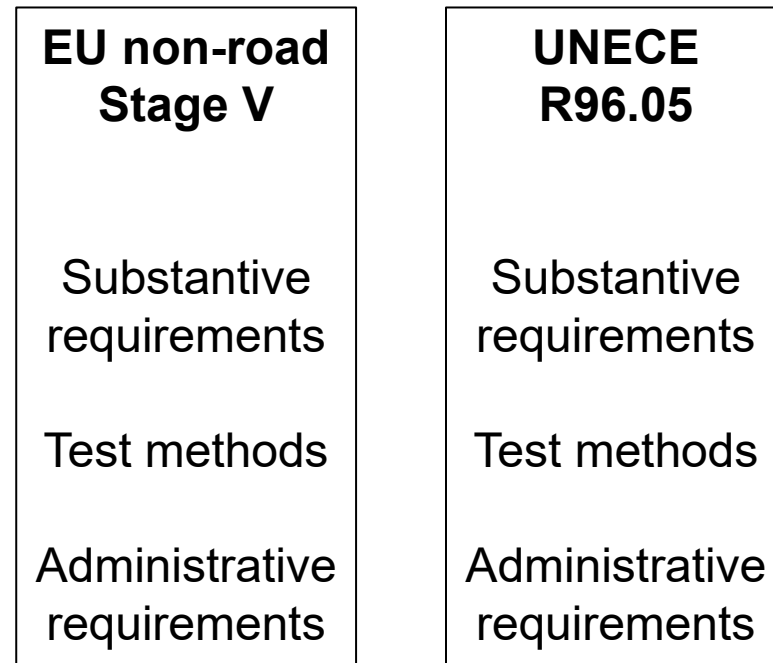


# DIFFERENCE IN REGULATORY STRUCTURE: EU ON-HIGHWAY versus NON-ROAD TYPE-APPROVAL



## CROSS REFERENCE

Latest available R49 test method used directly in both UNECE and EU type-approval



## EQUIVALENCE

Type-approval to R96.05 cited as equivalent to EU Stage V type-approval via specific clause

# NEXT STEPS

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- EUROMOT plans to develop draft amendments to UNECE R96 and R120 as informal documents for the 87th session of GRPE, Jan 2023
- Intent to mirror technical approach for UNECE R49 and R85, adapted accordingly to the structure of the respective non-road regulations
- In parallel, EUROMOT will work as liaison organisation to ISO TC70 SC8 to adapt the ISO 8178 standard series for a broader range of applications and fuels
- In the interim EUROMOT anticipates manufacturers may utilise Art. 35 of Regulation (EU) 2016/1628 to request EU Stage V type-approvals where needed for engines operated on H<sub>2</sub>, reflecting differences in:
  - scope between UNECE and EU Stage V regulations;
  - regulatory structure between EU on-highway and non-road, and;
  - timeline to amend EU non-road Regulation

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