資料32-4

Updates on applicable regulation on EU Inland Waterways – EU Stage V and other related topics

CIMAC WG 5 on
26th June
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Todays Agenda:

- **Recapitulation on status on EU Stage V for IWT (Categories and Scope, Limits and Schedule,..)**
- **Updates / timeline ISM amendments**
- **Info on retrofit study**
- **Other current regulatory aspects**
- **Outlook**

Introduction on EU Stage V

- EU V (Regulation 2016/1628) and respective delegating and implementing acts apply to a broad range of applications

- Inland Waterway Vessels as well →significant changes due to more stringent limits and new engine categories arise

EU V: Limits and schedule for engines used in inland waterway vessels

(5) 'category IWP':

(a) engines exclusively for use in inland waterway vessels, for their direct or indirect propulsion, or intended for their direct or indirect propulsion, having a reference power that is greater than or equal to 19 kW;

(b) engines used in place of engines of category IWA provided that they comply with Article 24(8);

(6) 'category IWA': auxiliary engines exclusively for use in inland waterway vessels and having a reference power that is greater than or equal to 19 kW;

NOx / THC / CO / PM (g/kWh) / [PM count/kWh] (NOx+THC) / CO / PM (g/kWh) / [PM count/kWh]

Liters per Cylinder	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	A
≤0.9 (>37kW)	(7.5) / 5.0 / 0.40						>>		19-75kW	(4.7) / 5.0 / 0.3					IWP-v-1,IWP-c-1 IWA-v-1,IWA-c-1		6.00
0.9 - 1.2	(7.2) / 5.0 / 0.30						>>										
1.3 - 2.5	(7.2) / 5.0 / 0.20						>>		75-130kW	(5.4) / 5.0 / 0.14					IWP-v-2,IWP-c-2 IWA-v-2,IWA-c-2		6.00
2.6 - 5.0	(7.2) / 5.0 / 0.20						>>										
5.0 - 15	(7.8) / 5.0 / 0.27						>>		130-300kW	2.1 / 1.00 / 3.5 / 0.10					IWP-v-3,IWP-c-3 IWA-v-3,IWA-c-3		6.00
15 - 20, P ≤ 3300 kW	(8.7) / 5.0 / 0.50						>>										
15 - 20, P > 3300 kW	(9.8) / 5.0 / 0.50						>>		>300kW		1.8 / 0.19 / 3.5 / 0.015 / [10^12]				IWP-v-4,IWP-c-4 IWA-v-1,IWA-c-1		6.00
20 ≤ 25	(9.8) / 5.0 / 0.50						>>										
	Stage IIIA									Stage V							

From stage V a stage V non-road engine <560 kW may alternatively be used in this application

A is gaseous fuelled engine hydrocarbon factor.

A-factor limits hydrocarbon (CH4) emissions of gas engines

- **Approximately aligns with US 37-130 kW**
- **Approximately aligns with IMO III NOx and US HC/CO/PM 130-300 kW**
  - **SCR or EGR required**
- **PM count >300 kW**
  - **DPF required > 300 kW**
- **NOx does align with US > 600 kW**

Timeline ISM amendments

- 2016/1628 Art. 19 requires monitoring of emissions of in-service engines (ISM) for all Stage V engine categories
- The initial Commission Delegated Regulation included only variable speed engines category NRE 56 – 560 kW (NRE-v-5, NRE-v-6)
- For additional engine (sub-) categories further adjustment to the concept for sampling for the purpose of ISM in development
- Amendment to Commission Delegated Regulation (EU) 2017/655 will be prepared – scope of document will be enlarged

Timeline ISM amendments

- ***COM DEL. REG. (EU) 2019/YYY: Monitoring of NRMM in-service engines of less than 56 kW or more than 560 kW*** Including Inland waterways

  Calendar:

  Planned adoption date: Q3 2019

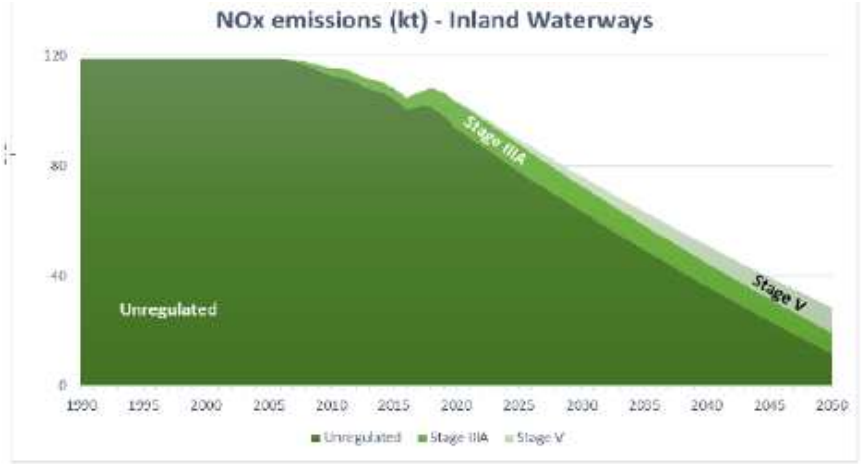
  Planned publication date: Q1 2020

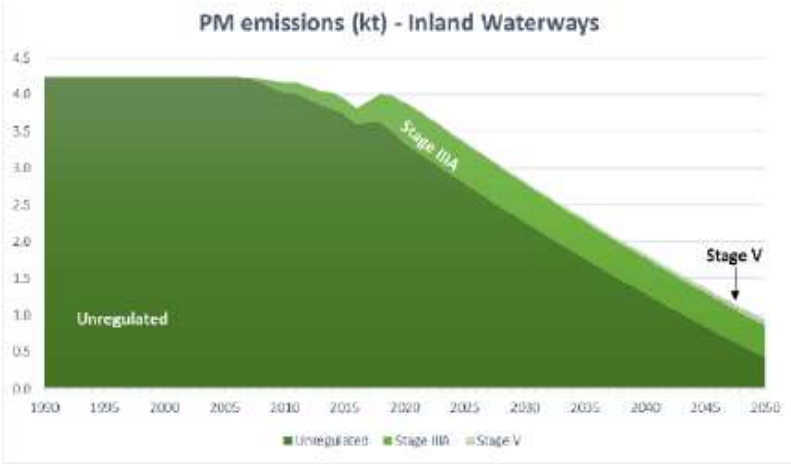
- ***Entry into force: 20 days after publication***

- Detailed discussion on monitoring plan, definition of test parameters (multiple stacks,…), installation constraints (not for IWV, applies for Rail and some small engines categories),… took place
- Content discussed – preparation at COM ongoing
- EUROMOT will prepare a FAQ document on the matter

Retrofit study

- The evaluation of retrofit options is part of the review provision for regulation 2016/1628 (”EU Stage V”)
- A detailed study on retrofit options to reduce PM and NOx was presented by an independent consultant

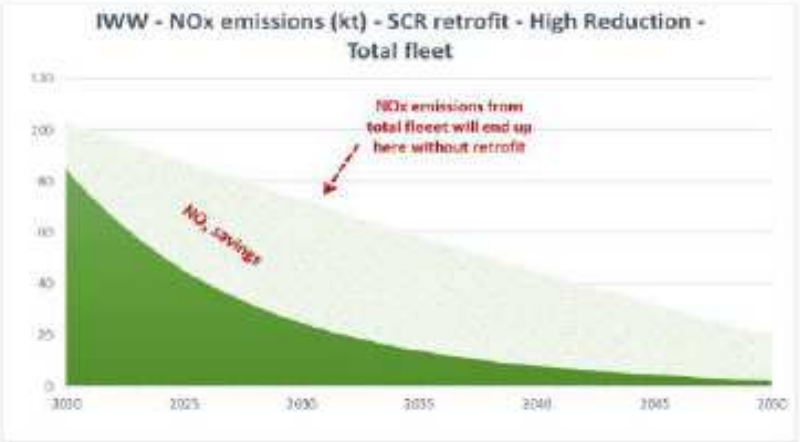


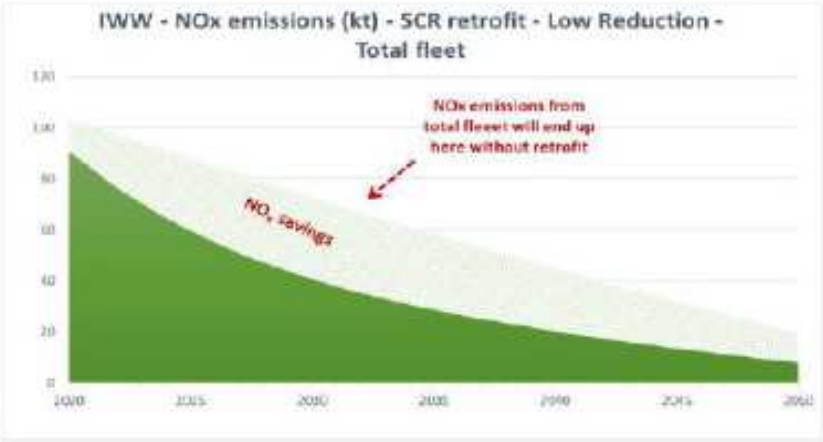


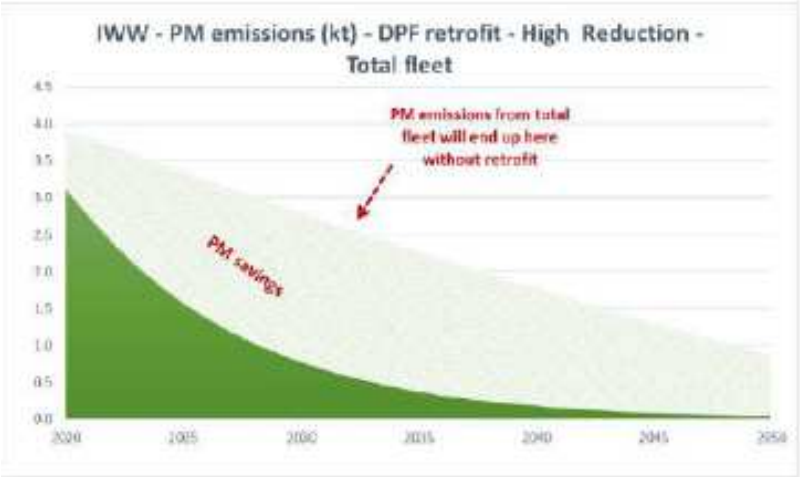
- NOx and PM emissions are constantly declining since the introduction of Stage limits around 2008
- Emissions from unregulated fleet dominate total NOx and PM emissions until 2050, since the unregulated fleet is still present in 2050, though with a smaller contribution to the total fleet

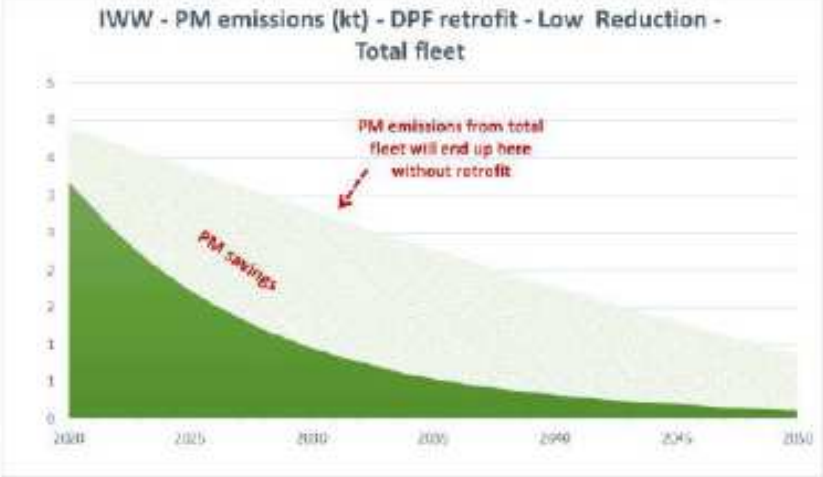
Retrofit study

Evolution of emission in high- or low reduction efficiency approaches

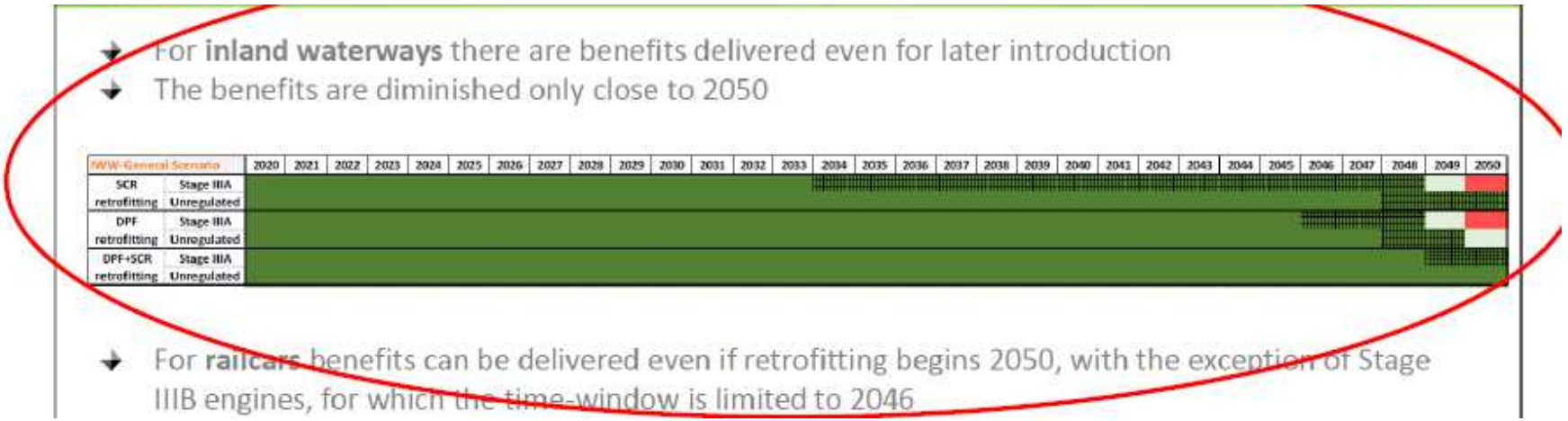








Retrofit study



- Despite positive potential, no policy options for IWV studied yet
- Doubts on necessary industrial capacities (shipyards,…)
- Interesting to further follow-up (policy discussion, potential market-based measures, maintain level playing field,…)

Other regulatory aspects

- Approaches for postponement of EU V (France)
  - not much support
  - would require co-decision → "may open the door for other stakeholders as well"
- Discussion of incomplete EU V engine portfolio ongoing
  - industry complaints to member state reps
- Use of NRE / Euro VI engines – requirements on marinisation still in discussion
  - is and if yes how the type-approved scope affected?
  - what about safety requirements of ES TRIN
- Updates FAQ document **https://www.euromot.eu/publication-and-events/publications/**

Thank you for your attention

Any questions?

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