MAN Energy Solutions Future in the making



CIMAC WG 5

Regulatory developments - Marine GHG and Air Emissions (EU and IMO)

Dorte Kubel 12 June 2024



AGENDA

- **1** EU Status
- 2 IMO Status

1 EU Status



EU Status

FuelEU Maritime and inclusion of shipping in EU ETS

- Final regulation published end of 2023
- Requirements applicable from 2025 (based on 2024 reporting)
- Info, FAQ's and webinars: Reducing GHG emissions EMSA European Maritime Safety Agency (europa.eu)
- Some implementing regulation and guidance still under development (consultations in European Sustainable Shipping Forum)



Sustainability / Prevention of Pollution by Ships / Reducing GHG emissions



Reducing GHG emissions



The European Green Deal is the roadmap for the European Union to achieve climate neutrality by 2050. To support it, a package of new and revised legislation, known as Fit for 55, sets out how the EU intends to reduce its net greenhouse gas emissions (GHG) by at least 55% by 2030. Included in this legislative package is the maritime transport sector.



IMO 2023 GHG Strategy

IMO 2023 GHG Strategy Adopted 7 July 2023



https://www.imo.org/en/OurWork/Environment/Pages/2023-IMO-Strategy-on-Reduction-of-GHG-Emissions-from-Ships.aspx

Further development of GHG mid-term measures

Basket of mid-term measures consisting of

- a technical element: GHG fuel standard (similar to FuelEU Maritime)
- an economic element: as complementary goal-based GHG pricing mechanism

Divergent views on whether this will result in

- an integral approach where technical and economic elements would be integrated in the GHG fuel standard through flexibility compliance strategies <u>or</u>
- through an approach where a complementary GHG pricing mechanism (GHG levy) would be developed in addition to the GHG fuel standard.

Comprehensive Impact Assessment (CIA)

- being conducted in parallel (literature review, impact on fleet, impact on states (various scenarios), case studies)
- is as important step prior to deciding how to tailor the mid-term measures



Timeline



Outcome of MEPC 81 and ISWG-GHG 16

Update of guidelines on life cycle assessment of GHG intensity of marine fuels (LCA Guidelines)

- Agreement on update of IMO LCA Guidelines based on recommendations of correspondence group ("2024 LCA Guidelines")

Agreement to establish a permanent Panel of Experts under GESAMP

- Task: to scientifically review the LCA Guidelines on a continuous basis and to further improve the content (e.g. methodology, review of WtT and TtW GHG default emission factors, sustainability aspects)
- Nomination of experts were invited (deadline 30 April)
- Work expected to start in Autumn 2024

Correspondence group on "Measurement and verification of non-CO2 GHG emissions and onboard carbon capture"

- Coordinated by Norway
- Used work of European Sustainable Shipping Forum* as basis
- Started beginning of May 2024; will report to MEPC 83 (spring 2025)

^{*)} MEPC 81/INF.6 by EU Member States, EU Commission, SGMF and EUROMOT

Correspondence group on "Measurement and verification of non-CO2 GHG emissions and onboard carbon capture"

Terms of Reference 1 (Measurement and verification of non-CO2 GHG emissions)

ToR 1.1

- consider how to develop a framework for the measurement and verification of actual tank-to-wake methane (CH4) and nitrous oxide (N2O) emission factors and Cslip value for energy converters, taking into account relevant documents and technical references, taking into account any necessary proposals, which may include, but not limited to, standardization required regarding a test cycle approach (including mode points and weighting factors); onboard monitoring; engine load distribution, and associated measurement equipment technology and procedures, as applicable;

ToR 1.2

 consider how to develop a methodological framework for associated certification issues, in support of the application of the LCA Guidelines; and

ToR 1.3

 identify the relevant gaps in existing instruments, and propose recommendations, with a view to developing necessary regulatory or recommendatory instruments;

Correspondence group on "Measurement and verification of non-CO2 GHG emissions and onboard carbon capture"

Terms of Reference 2: Onboard carbon capture

- with regard to onboard carbon capture, further consider issues related to onboard carbon capture, using paragraph 31 of document MEPC 80/7/7, as well as comments made in the Working Group on Air Pollution and Energy Efficiency, and develop a work plan on the development of a regulatory framework for the use of onboard carbon capture systems with the exception of matters related to accounting of CO2 captured on board ship.

Outcome of MEPC 81 and ISWG-GHG 16

New Emission Control Areas for NOx, SOx and PM

MEPC 81 approved two new ECA's:

- -Canadian Arctic
- -Norwegian Sea
- Expected adoption at MEPC 82
- Planned entry into force 1 March 2026





Outcome of MEPC 81 and ISWG-GHG 16

Expected revision of the NOx regulation

- MEPC 81 considered a document* expressing concerns of the lack of effectiveness of the current NOx regulation (Regulation 13 of MARPOL Annex VI).
- The concerns include low efficiency of NOx control at low load for Tier III, early keel laying to avoid Tier III compliance, test cycles not being representative for actual operation and lack of enforcement tools.
- EUROMOT provided technical comments, noting that further NOx reduction below 25 % in Tier III would require additional energy and/or use of fuels with lower sulphur content, that if revision of test cycles is needed, it should be done by ISO and that several tools for enforcement already exists in the current NOx regulation.
- Many member States supported the concerns expressed by Belgium et al. and supported the need to revise the NOx regulation.
- A formal proposal to start a revision of the NOx regulation is expected to MEPC 82 in October 2024.
- The revision may start in 2025, depending on the agenda of PPR 12.

*) MEPC 81/5/3 submitted by Belgium, Canada, Denmark, Germany, Ireland, Netherlands, Norway and United States.



Outcome of PPR 11 (February 2024)

Multiple engine operational profiles, rational NOx emission control and selection of test cycles Background

- The issue of multiple engine operational profiles was raised by Norway in 2016 (MEPC 69)
- Terms of reference for new output agreed in 2018 (MEPC 73)
- Proposed amendments were co-sponsored Denmark, Finland, Japan, US, EUROMOT and World Shipping Council (PPR 11/8 and PPR 11/INF.12).



Highest NOx at each mode point for all EOP are EOP NOx modes



Outcome of PPR 11 (February 2024)

Multiple engine operational profiles, rational NOx emission control and selection of test cycles Amendments agreed by PPR 11* provide clarification regarding:

- The use of multiple engine operational profiles, allowing use of the "envelope concept".
- What constitutes a rational NOx emission control strategy, by requiring a detailed description of the auxiliary control devices and the applied NOx emission control strategy to be documented in a so-called NOx Certification Package to the Administration
- Off-cycle emissions, by introducing a not-to-exceed limits to screen emissions outside the IMO load points.
- Introducing binary choices for the selection of engine certification test cycles, thereby ensuring their uniform application across certifying Administrations and Recognized Organizations.
- Expected entry into force:
 - on 1 January 2027 for new engine families and groups, and
 - on 1 January 2029 for members engines to engine families or groups where the parent engine was already certified before 2027.

*) PPR 11/WP.4, annex 3 and 4

Outcome of PPR 11 (February 2024)

Retrofit NOx certification

PPR 11 agreed on draft amendments to the NOx Technical Code on recertification procedures of existing marine diesel engines on board.

The draft amendments

- Remove the regulatory uncertainties by introducing a number of simplifications for on-board parent tests (compared to standard shop test requirements).
- Align with the existing definitions in the NOx Technical Code, considering the re-certification as "substantial modification".

The draft amendments to the NOx Technical Code will be sent to MEPC 82 (September 2024) for approval.

Formal adoption is expected at MEPC 83 (2025), followed by a minimum 16 months period before entry into force.

Outcome of PPR 11 (February 2024)

Black Carbon (BC)

PPR 11 finalized voluntary guidelines on BC for ships in or near the Arctic, encouraging ship owners to:

- -develop a black carbon management plan to reduce BC
- -perform onboard measurements to document reductions
- -report the measurements to IMO via their flag State administrations

The onboard measurements can be performed with

- -any of the three measurement methods acknowledged by IMO (FSN, LII or PAS) or
- -by other alternative method if a correlation against FSN is established

No agreement on mandatory measures

- Green NGOs had proposed mandatory measures based on fuel quality (e.g., mandatory use of distillates)
- Discussed, but there was not sufficient support from member States

Outcome of PPR 11 (February 2024)

Possible restrictions of discharge of scrubber water from Exhaust Gas Cleaning Systems (EGCS)

Diverging views expressed, inter alia:

- Member States should ban discharge of scrubber water from EGCS in their national waters, and should pursue the possibility of wider regional bans (e.g. Baltic Sea) via IMO.
- There is comprehensive evidence on the harmful effects of scrubber water discharge from EGCS.
- Member States should consult IMO and any other States concerned, before considering to regulate discharge from EGCS beyond territorial waters, as requested by the United Nations Convention of the Law of the Sea (UNCLOS).
- Use of EGCS should continue to be allowed, provided they comply with the EGCS Guidelines.
- Possible restrictions on the use of EGCS should be based on an environmental impact assessment according to IMO's guidelines (MEPC.1/Circ.899).
- There is need for legal certainty for those who invested in EGCS to avoid stranded assets.

There was no consensus on restrictions on the discharge from EGCS.

To be further discussed at MEPC 82

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Thank you Very much!

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