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CIMAC WG5

Regulatory Developments in Marine Air Pollution and GHG IMO and EU

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3 November 2022

1 **IMO**

- PPR
- MEPC and working group on GHG

2 **EU**

1 IMO

PPR Sub Committee

PPR (Pollution Prevention and Response)

Status

PPR 9 (April 2022) was reported to the CIMAC meeting in May 2022

PPR 9 established a correspondence group (CG) on air pollution (ongoing):

– **Black carbon**

– **Multiple engine operational profiles (NOx) & Test cycles**

– Gasification

– VOC

PPR 10 is scheduled for 24 – 28 April 2023

Black Carbon

PPR Correspondence Group

Terms of reference

– Develop recommendatory goal-based Black Carbon control measures
– Further consider regulating or otherwise directly controlling BC
– Report to PPR 10

Status

– Some support for voluntary measurement and reporting of on-board BC measurements in Arctic (using FSN)
– Procedure for test-bed measurements (“certification”) may be developed later
– No agreement on limit/voluntary threshold for in-service (or test bed) BC exhaust emissions
– Wide support for the voluntary resolution on use of distillate or other cleaner fuels in the Arctic - MEPC 342(77)
  – Some wants to make it mandatory

Multiple Engine Operational Profiles

PPR Correspondence Group

Terms of reference

- Develop of amendments to IMO regulation to **clarify the conditions for the use of multiple EOPs,** taking into account the “not-to-exceed” concept
- Clarify the need to extend the scope of work to cover clarification of **EIAPP test cycles**
- Report to PPR 10 (2023)

Status

- General agreement on some issues related to EOPs, but..
- ..still diverging views on key issues
- General support to extend the scope of work to test cycles
- Need for further discussions at PPR 10

Marine Environmental Protection Committee (MEPC)

Main issues on the agenda (of relevance for CIMAC WG5)

GHG

– Revision of IMOs initial GHG Strategy

– Guidelines on lifecycle GHG intensity of marine fuels (LCA guidelines)

– Mid-term GHG reduction measures

– Onboard CO_2 capture – inclusion in IMO regulation?

– Biofuels – inclusion in IMO regulation?

Air pollution

– Extension of scope of MEPC.1/Circ.795/Rev.6 (NOx from biofuels) to RFNBOs

– Designation of Mediterranean as a SOx-ECA – Adoption

– Black carbon – proposal to make MEPC 342(77) mandatory

Mid-term GHG Reduction Measures

Status and next steps

Status (after MEPC 78)

– Agreement to further develop a “**basket of mid-term measures**”

– Convergence on the need to establish an **economic measure as well as technical/operational measures, e.g.:**

  – CO_2 levy

  – Low GHG Fuel Standard

  – Increased stringency of CII/EEDI/EEXI

– Members were encouraged to cooperate on **combining proposals**, for further consideration by ISWG-GHG 13

– Possible **negative impacts of on developing countries and small island states** will need to be addressed (mitigated)

MEPC 79 and 80 to “assess and select measures”

LCA Guidelines

Guidelines for the assessment of lifecycle GHG intensity of marine fuels

MEPC 78 agreed to develop LCA Guidelines

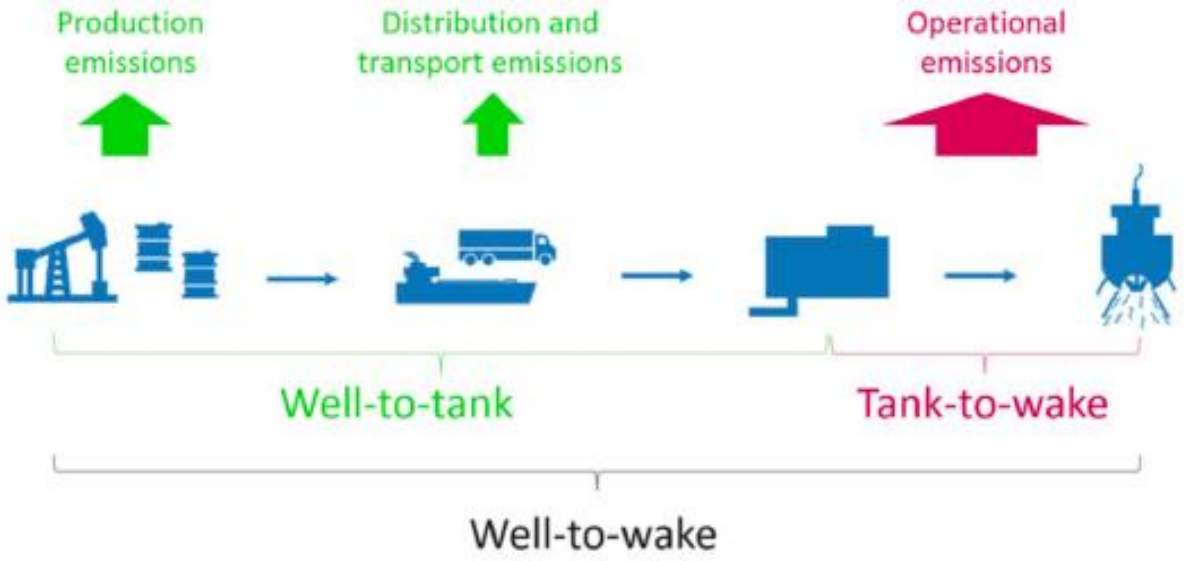
Terms of reference for correspondence group:

- Further develop the draft LCA guidelines, including:
  - Identify **main initial fuel production pathways and feedstock's**
  - Develop methodologies for the calculation and certification of **Well-to-Tank and Tank-to-Wake GHG emissions** of marine fuels
  - Consider **sustainability aspects** (other than GHG)
  - Consider **measurement of actual methane slip using NOx Technical Code procedures**
- Report to MEPC 80

*) MEPC 78/7/13 (Rep. of Korea)

LCA Guidelines

Interim Report to MEPC 79 – Some observations - I*



Initial list of fuel pathways

– A very long list (80 fuel types); most relevant fuels covered

– Still some inconsistencies

Well-to-Wake Methodology, general methodology

– Covers: CO_2, N_2O and CH_4. BC not to be included at this stage.

– Consensus on GWP100; the possibility to calculate GWP20 for “comparative purposes” will be explored.

– General agreement to exclude construction/dismantling of facilities/equipment (sensitivity analysis may be considered at a later stage in the CG work)

Sustainability criteria (other than GHG)

– Should not delay finalization of guidelines

– Focus on environmental aspects related to fuel production

*) Please refer to the interin report to MEPC 79 for details (MEPC 79/7/12)

LCA Guidelines

Interim Report to MEPC 79 – Some observations - II*

Tank-to-Wake emissions

– General agreement that values from IMO 4th GHG study as basis for default factors.

– Definition of methane slip (Cslip) under consideration, not finalized.

– General support for using NTC 2008 as basis to determine actual values of TtW emission factors (CH_4, N_2O).

  – New MEPC workstream? ⟵

– Concept of on-board carbon capture suppoted in general

  – Further investigation of on-board carbon capture is outside ToR (new MEPC Work stream?) ⟵

Special interest of WG 5? ⟵

) Please refer to the interin report to MEPC 79 for details (MEPC 79/7/12)

Biofuels and On-Board Carbon Capture

Status

– Neither biofuels nor on-board carbon capture (OBCC) are currently accounted for in IMO regulation

Proposals to MEPC 79 (December)

Biofuels:

– Carbon factor (Cf) = 0 for biofuels in in CII (following agreement on LCA guidelines)

On-board carbon capture

– Different proposals to include OBCC in EEDI and/or CII framework

– How to handle permanent storage?

IMO Timeline – GHG Reduction

Revision of GHG Strategy

LCA Guidelines

To be finalized by MEPC 80, July 2023

Mid-term measures (Work plan)

Phase 1	Phase 2	Phase 3
• Spring 2021 to Spring 2022 • Initial consideration of measures	• **Spring 2022 to spring 2023** • **Assessment and selection of measures**	• Finalize measure(s) • Target dates according to IMOs GHG Strategy (2023 – 2030)

Review of CII and EEXI

To be finalized 1 January 2026

Revision of EEDI

Have been postponed several times..

2 EU

FuelEU Maritime

Background

– Part of FitFor55 climate package (55% reduction in EU GHG emissions by 2030 compared to 1990 levels)

Aim

– Accelerate the uptake of renewable and low-carbon fuels and technologies in shipping

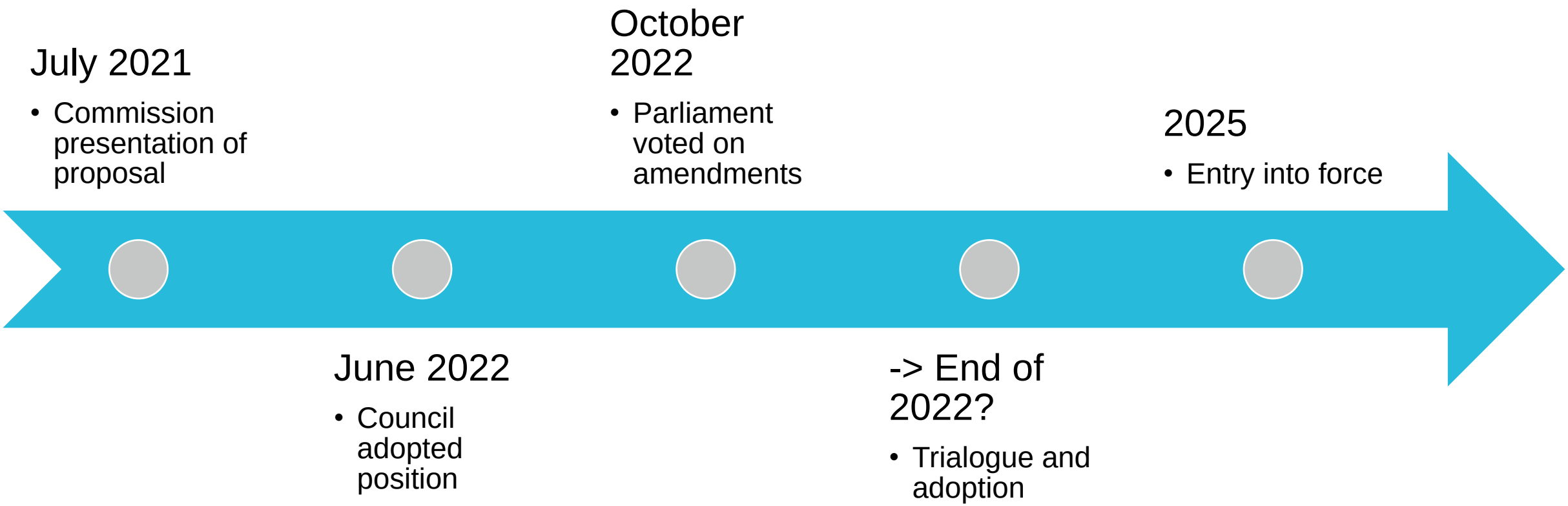
Main elements:

– Ships to gradually reduce the annual average GHG intensity of the fuel/energy used on-board ($CO2_{eq}$/MJ).

– On-shore power supply (OPS) for passenger & container ships from 2030

Reduction in annual average GHG Intensity (g CO_{2eq}/MJ)		
	COM & Council	Parliament
2025	- 2%	- 2%
2030	- 6%	- 6%
2035	- 13%	- 20%
2040	- 26%	- 38%
2045	- 59%	- 64%
2050	- 75 %	- 80%

Timeline – FuelEU Martime



FuelEU Maritime

EU Low GHG Fuel Standard

Scope

– Well-to-Wake CO_2-equivalents: CO_2, N_2O and CH_4 (GWP 100)

– Ships above 5000 GT*. May be lowered to 400 GT, subject to review in 2027

– Energy used on internal EU voyages and port stays plus half of the energy used to/from EU ports

Key elements

– Penalties for “under-achievers” -> Ocean Fund

– Fleet mechanism rewarding “over-achievers”

– Sustainability criteria for fuels according to RED II

– Default values for WTT and TTW emissions, with the possibility of using certified values**

– *Parliament: Minimum share and reward for use of renewable fuels of non-biological origin (RFNBO)*

*) Excluded applications are navy, government, fishing, dredger, ice-breaker, pipe-layer or offshore installation activities
**) Except WTT values for fossil fuels

Defintion of RFNBOs

Renewable Energy Directive (RED II)*

Definition of “renewable liquid and gaseous transport fuels of non-biological origin”:

– Liquid and gaseous fuels the energy content of which is derived from renewable sources other than biomass

Basic requirements:

– GHG savings from the use of RFNBOs should be at least 70% to count in EU GHG reduction/renewable energy targets.

– No credit for CO_2, the capture of which has already received an emission credit under an emission trading system.

Detailed specifications

– EU COM to develop detailed rules for:
  – GHG savings
  – Electricity used for production of hydrogen

*) CL2018L2001EN0010010.0001_cp 1..1 (europa.eu)

RFNBOs

DRAFT EU delegated regulation on hydrogen for production of (RFNBO)*

Hydrogen:

– Hydrogen for RFNBOs are considered renewable when the hydrogen component is produced in an electrolyzer that uses **renewable electricity** (from installation directly coupled or from the grid).

– Capacity for production of renewable hydrogen must be **additional** or come from a grid with min 90 % renewable energy.

*) Renewable energy – method for assessing greenhouse gas emission savings for certain fuels (europa.eu)

RFNBOs

DRAFT EU regulation on GHG savings for RFNBOs*

Calculation of GHG savings of RFNBOs

– GHG emissions from production and transport are taken into account.

– CO_2 captured from the production process can be subtracted provided it is geologically stored

– Former use of carbon source to be taken into account (e.g. waste formerly used for production of heat)

Carbon sources:

– Carbon from **waste** (provided not suitable for material recovery**)

– Carbon **captured**, provided it is :

  – Captured from air

  – Captured from combustion of sustainable*** biomass

  – Until 2035: Captured from a from an industrial process, where the carbon has been taken into account upstream in an effective carbon pricing system

*) Published initiatives (europa.eu)
**) As defined in EU-Directive on waste : EUR-Lex - 02008L0098-20180705 - EN - EUR-Lex (europa.eu)
***) As defined in Revised Renewable Energy Directive (RED II) : EUR-Lex - 02018L2001-20220607 - EN - EUR-Lex (europa.eu)

Inclusion of Shipping in EU ETS

Background

– Part of FitFor55 climate package (55% reduction in EU GHG emissions by 2030 compared to 1990 levels)

Principles

– Cap on shipping emissions - to be reduced over time

– Trading with other sectors possible

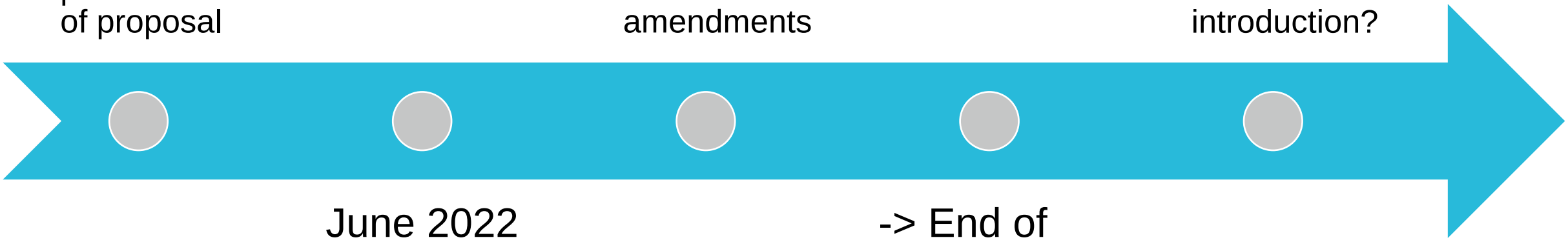
Scope (EU COM proposal – subject to change)

– Ships above 5000 GT

– CO_2 (Tank-to-Wake)

– Energy used on internal EU voyages and port stays plus half of the energy used to/from EU ports

Timeline – Shipping in EU ETS



July 2021

- Commission presentation of proposal

June 2022

- Council adopted position

June 2022

- Parliament voted on amendments

-> End of 2022?

- Trialogue and adoption

2023-25

- Gradual introduction?

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Thank you very much!

Name Author
Department
Day, Month, Year

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Upcoming MEPC and Working Group Meetings

MEPC: Marine Environmental Protection Committee
ISWG-GHG: Intersessional Working Group on Greenhouse Gas Emissions