



PLANNING OF GESAMP ACTIVITIES

Life cycle Greenhouse Gas (GHG) intensity of marine fuels

Report of the Chair of Working Group 46

Background and introduction

1 During its 81st session, the Marine Environment Protection Committee (MEPC) of IMO adopted the *2024 Guidelines on life cycle GHG intensity of marine fuels* (2024 LCA Guidelines) (resolution MEPC.391(81)) and:

- .1 agreed, in principle, with the establishment of a GESAMP Working Group on Life Cycle GHG Intensity of Marine Fuels (GESAMP-LCAWG/WG 46) to provide the best possible scientific and technical assessment of issues related to the implementation of the 2024 LCA Guidelines;
- .2 approved the terms of reference of WG 46; and
- .3 requested the Secretariat to finalize a request for the new Group for submission to GESAMP.

2 The Chair and Vice-Chair of GESAMP, in consultation with the GESAMP Office, undertook a rigorous selection process to form Working Group 46. Following the call for experts issued during MEPC 81, the following steps were followed: a) review of all expressions of interest through an evaluation process; b) selected twelve experts acting in their individual capacity; and c) ensured balanced representation in terms of geographical diversity, gender parity and appropriate expertise across all aspects of the Terms of Reference (ToRs).

First meeting of WG 46

3 WG 46 convened its first meeting through a hybrid format comprising; a) a four-day in-person meeting at IMO Headquarters, (10-13 September 2024), with three supplementary virtual sessions (16 October, 4 November, and 6 November 2024).

4 The main purpose of the first meeting was for WG 46 to discuss and consider a possible way forward for each item of its terms of reference and to develop a tentative work plan. In conducting the preliminary review of available proposals for default emission factors, the Group agreed to prepare a methodology clarifying the submission and review process of proposed default emission factors. The Group also highlighted several areas where additional experts would benefit its future work.

5 MEPC, at its 83rd meeting from 7 to 11 April 2025, considered and approved the *Methodology for submission, scientific review and recommendation of proposed default emission factors by GESAMP-LCA WG* (MEPC.1/Circ.916).

6 In view of the expected high volume of work, WG 46 noted that interested members would continue to work by correspondence on a number of pending issues, inter alia:

- .1 definition of "fuel pathway" and "pathway code";
- .2 development of a uniform understanding of "representativeness" and "conservativeness" for the assessment of default emission factors;
- .3 support to the Secretariat in developing and testing the Excel tool;
- .4 ILUC risk-based approach;
- .5 development of flow charts of carbon sources and sinks to avoid double-counting; and
- .6 recommendations for content and structure of the TtW default emission template (appendix 5 of the LCA Guidelines)

6 WG 46 finalized the development of the templates (based on appendixes 4 and 5 of the 2024 LCA Guidelines) and the Excel tool to standardize the reporting of parameters and the calculation of proposed default emission factors. This material is available to download at: [IMO framework on life cycle GHG intensity of marine fuels \(LCA\)](#)

7 The Group, in considering areas where additional experts would benefit its future work, welcomed a new member, researcher Dr. Deoras Prabhudharwadkar, who will participate from the Group's second meeting and onward.

Planning ahead

8 WG 46 aims to hold two in-person meetings per calendar year, well before the MEPC session is expected to decide on the approval of proposed default emission factors. WG 46 may also work by correspondence and hold virtual meetings, as necessary.

9 The next regular meetings of WG 46 had been tentatively scheduled to take place from 30 June to 4 July 2025 (second meeting) and from 3 to 7 November 2025 (third meeting), preparing for MEPC 84, tentatively scheduled from 27 April to 1 May 2026.

Acknowledgement

10 WG 46 expresses its sincere appreciation to Mr. Alex Baker for his valuable participation in the Group's first meeting. His insightful input and readiness to address and clarify WG 46 members' questions enhanced the productivity and clarity of the session.

11 WG 46 is thankful to all members of GESAMP that took the time to critically review the work of WG 46. The quality of the work has improved as a result of the peer review process and the comments made will be considered in the drafting of the reports for future use.

Action requested of GESAMP

12 GESAMP is invited to consider the information provided and take action as appropriate.

ANNEX 1

MEMBERSHIP OF WG 46

Name	Affiliation	Country
Chang Shengdai	China Classification Society	China
Farhad Masum	Argonne National Laboratory	Bangladesh
Deoras Prabhudharwadkar	King Abdullah University of Science and Technology	India
Hiang Kwee Ho	National University of Singapore	Singapore
Janie Ling-Chin	University of Durham	Malaysia
Kati Lehtoranta	VTT Technical Research Centre of Finland	Finland
Marcelo Moreira	Agroicone - Think tank	Brazil
Matteo Prussi	Politecnico di Torino	Italy
Michael Wang	Argonne National Laboratory	United States of America
Patrick Kirchen	University of British Columbia	Canada
Rachael Rothman	University of Sheffield	United Kingdom
Ryuji Miyake	ClassNK	Japan
Selma Brynolf (Chair)	Chalmers University of Technology	Sweden

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ANNEX 2

TERMS OF REFERENCE FOR GESAMP LCA-WG/WG 46

The terms of reference for the GESAMP-LCA WG/WG 46 as approved by MEPC 81 are as follows:

“The GESAMP Working Group on the Life Cycle GHG Intensity of Marine Fuels (GESAMP-LCA WG) is an expert group to provide best the possible scientific and technical assessment of issues related to the implementation of the *Guidelines on life cycle GHG intensity of marine fuels* (LCA Guidelines), in particular:

- .1 *Methodological refinement of the emission quantification in the LCA Guidelines, with a view to ensuring the integrity of all information provided:*
 - .1 scientific review of the LCA methodology;
 - .2 scientific review of the well-to-tank (WtT) GHG default emission factors of fuel production pathways and technologies;
 - .3 scientific review of the tank-to-wake (TtW) GHG default emission factors of fuel usage and onboard technologies (explicitly mentioning Onboard Carbon Capture Systems (OCCS) boundaries); and
 - .4 sample calculations on LCA and reflecting the output into the existing Fuel Lifecycle Label (FLL).
 - .2 *Sustainability themes/aspects:*
 - .1 refine and further explore indicators and metrics under the sustainability themes/aspects in the LCA Guidelines; and
 - .2 approaches to indirect land use change (ILUC) risk classification.
 - .3 *Methodological requirements of the LCA Guidelines with regard to certification:*

provide external experience and further information for the development and/or identification of possible requirements for fuel pathway certification, including WtT and TtW actual values.”
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