MARITIME TECHNOLOGIES FORUM

LEADING THE MARITIME WORLD FORWARD

ACCELERATING SAFE MARITIME DECARBONIZATION

ANNUAL REPORT 2024

Foreword

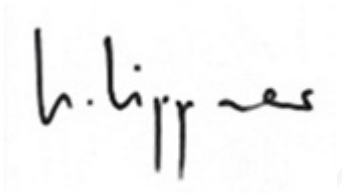
The Maritime Technologies Forum (MTF) is a unique collaboration of flag States and classification societies that aims to close the widening gap between rapidly advancing technology and the regulations that govern it. MTF exists to support the maritime industry's safe and sustainable transition by aligning innovation with effective and forward-looking regulation.

Since its establishment in 2021, MTF members have collaborated to offer technical expertise, regulatory insight, and impartial advice to the maritime industry. While our current focus is on providing guidance on the use of alternative fuels to help the industry meet its GHG emission reduction goals, we will also address the growing role of automation in future work.

MTF has steadily increased its activities, resulting in a growing number of publications, submissions, and events that present insights and explore their implications. Our recent focus has been on operational safety management – addressing previously identified gaps in the implementation of the ISM Code – and on safety considerations related to selected decarbonization technologies.

Our work supports policymakers, shipowners, classification societies, technology developers, and regulators by offering a trusted platform for technical insight and collaborative problem-solving. As the pace of change accelerates, MTF will continue to provide clear support and direction on safety management, emerging technologies, and procedures that enable a safe and sustainable maritime transition.

Through shared expertise and collaboration, MTF is helping shape a safer, smarter, and more sustainable future for shipping.



Lars Lippuner
MTF Executive Committee Chair

Introduction

The **Maritime Technologies Forum (MTF)** is a group of flag States and classification societies, established in 2021, which aims to bridge the gap between technological progress and regulatory process by providing technical and regulatory expertise to benefit the maritime industry. The role of the Forum is to work together on research that it publishes to the maritime industry and draw on regulatory expertise to be able to offer unbiased advice to the shipping sector. It seeks to give guidance on the use of alternative fuels and increased levels of automation in the industry to allow for the safe testing and adoption of new technologies and, thus, it helps shape world-leading regulation.

This report provides information on the 2024 communication by MTF, in terms of reports, submissions, seminars and webinars as well as media coverage. A brief outlook for 2025 and a list of references concludes this report.

Referencing this report:

Lippuner, Lars and Pierre C Sames (2025): MTF Annual Report, available at https://www.maritimetechnologiesforum.com/#publications

Achievements

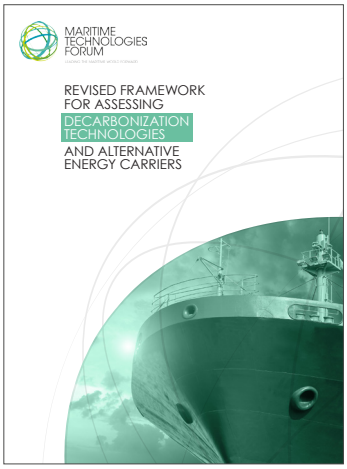
Overview

MTF successfully ramped up communication actions over the last four years, since MTF was launched in early 2021, and 2024 can be seen as demonstration of the current capabilities to deliver impact. The following table lists communications actions over time:

	Reports	Submissions	Seminars	Webinars
2021	1	0	0	0
2022	2	0	0	0
2023	1	0	1	0
2024	5	2	1	1

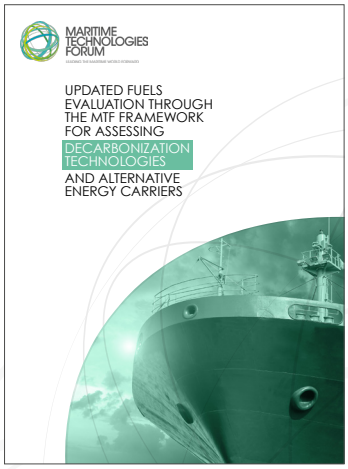
Reports

In 2024, MTF continued to drive safe maritime decarbonization and delivered five reports which were published on the MTF website and launched with press releases. Please refer to the list of references at the end of this report. The reports focused on operational safety management and selected technologies. We also updated our framework for assessing decarbonization technologies.



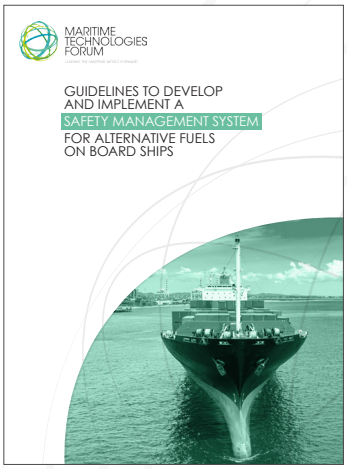
Revised Framework for Assessing Decarbonization Technologies and Alternative Energy Carriers

The update was made to account for the gaps and perceived weaknesses of the initial framework. Main improvements relate to the evaluation process, criteria and the way results are to be presented.



Updated Fuels Evaluation through the MTF Framework for Assessing Decarbonization Technologies and Alternative Energy Carriers

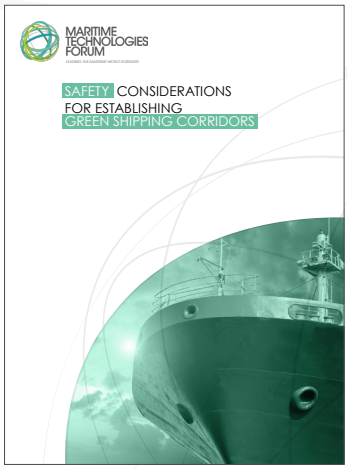
The update expanded the number of fuel technologies to be assessed from four to eight, compared to the initial report published a year before, and utilized the revised MTF Framework in the assessment.



Guidelines to Develop and Implement a Safety management System for Alternative Fuels on Board Ships

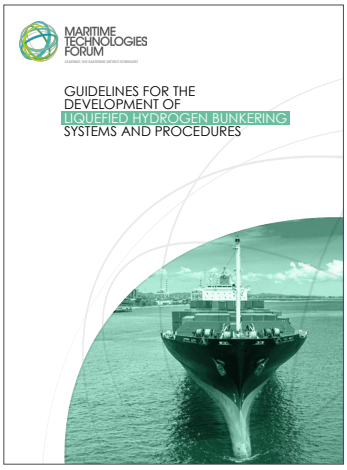
This report addressed the most important gaps highlighted in a previous report from 2023 (related to implementation of ISM, STCW and MLC for alternative fueled ships). To strengthen the guidelines, MTF worked with industry stakeholders who also promoted the result.

The report was submitted to IMO MSC.



Safety Considerations for Establishing Green Shipping Corridors

This report focused on safety management and complemented other organizations' guidance to implement green corridors. The report provided recommendations to ship owners and to port authorities, the latter a new stakeholder for MTF.



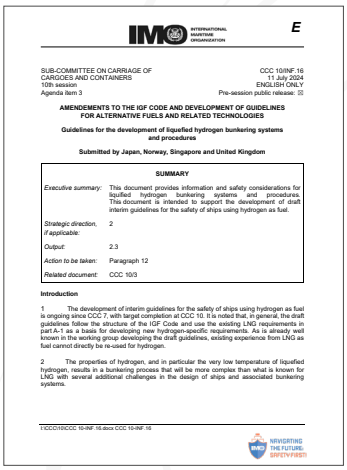
Guidelines for the Development of Liquified Hydrogen Bunkering Systems and Procedures

This report provided draft guidelines, building on LNG bunkering and taking into account recent experience from LH_2 bunkering of a ferry and LH_2 transport with a tanker.

The report was submitted to IMO CCC and presented during a lunchtime presentation.

Submissions

In 2024 MTF submitted two reports to IMO as INF-papers, meeting our ambition to "Establish a reputation with the IMO as a Forum that is able to give aligned, rigorous and thought-through advice on technological change and opportunities in order to inform future changes to Conventions."



IMO INTERNATIONAL MARITIME ORGANIZATION E

SUB-COMMITTEE ON CARRIAGE OF CARGOES AND CONTAINERS
10th session
Agenda item 3

CCC 10/INF.16
11 July 2024
ENGLISH ONLY
Pre-session public release: ☒

AMENDEMENTS TO THE IGF CODE AND DEVELOPMENT OF GUIDELINES FOR ALTERNATIVE FUELS AND RELATED TECHNOLOGIES

Guidelines for the development of liquefied hydrogen bunkering systems and procedures

Submitted by Japan, Norway, Singapore and United Kingdom

SUMMARY

Executive summary: This document provides information and safety considerations for liquified hydrogen bunkering systems and procedures. This document is intended to support the development of draft interim guidelines for the safety of ships using hydrogen as fuel.

Strategic direction, if applicable: 2

Output: 2.3

Action to be taken: Paragraph 12

Related document: CCC 10/3

Introduction

1 The development of interim guidelines for the safety of ships using hydrogen as fuel is ongoing since CCC 7, with target completion at CCC 10. It is noted that, in general, the draft guidelines follow the structure of the IGF Code and use the existing LNG requirements in part A-1 as a basis for developing new hydrogen-specific requirements. As is already well known in the working group developing the draft guidelines, existing experience from LNG as fuel cannot directly be re-used for hydrogen.

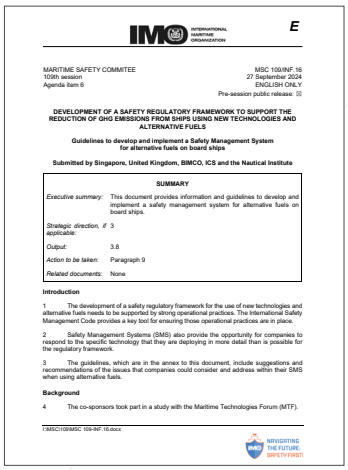
2 The properties of hydrogen, and in particular the very low temperature of liquefied hydrogen, results in a bunkering process that will be more complex than what is known for LNG with several additional challenges in the design of ships and associated bunkering systems.

I:\CCC\10\CCC 10-INF.16.docx CCC 10-INF.16

NAVIGATING THE FUTURE. SAFETY FIRST!

Submitted as CCC10/INF.16

The submission was done by all four MTF flag state members. A lunchtime presentation was organized by Singapore and the MTF project manager presented highlights from the guidelines contained in the report.



IMO INTERNATIONAL MARITIME ORGANIZATION E

MARITIME SAFETY COMMITEE
109th session
Agenda item 6

MSC 109/INF.16
27 September 2024
ENGLISH ONLY
Pre-session public release: ☒

DEVELOPMENT OF A SAFETY REGULATORY FRAMEWORK TO SUPPORT THE REDUCTION OF GHG EMISSIONS FROM SHIPS USING NEW TECHNOLOGIES AND ALTERNATIVE FUELS

Guidelines to develop and implement a Safety Management System for alternative fuels on board ships

Submitted by Singapore, United Kingdom, BIMCO, ICS and the Nautical Institute

SUMMARY

Executive summary: This document provides information and guidelines to develop and implement a safety management system for alternative fuels on board ships.

Strategic direction, if applicable: 3

Output: 3.8

Action to be taken: Paragraph 9

Related documents: None

Introduction

1 The development of a safety regulatory framework for the use of new technologies and alternative fuels needs to be supported by strong operational practices. The International Safety Management Code provides a key tool for ensuring those operational practices are in place.

2 Safety Management Systems (SMS) also provide the opportunity for companies to respond to the specific technology that they are deploying in more detail than is possible for the regulatory framework.

3 The guidelines, which are in the annex to this document, include suggestions and recommendations of the issues that companies could consider and address within their SMS when using alternative fuels.

Background

4 The co-sponsors took part in a study with the Maritime Technologies Forum (MTF).

I:\MSC\109\MSC 109-INF.16.docx

NAVIGATING THE FUTURE. SAFETY FIRST!

Submitted as MSC109/INF.16

The submission by two MTF flag state members was co-sponsored by three industry stakeholders (who previously contributed to the report)

(A lunchtime presentation is currently planned for MSC110 in June 2025.)

Seminars

MTF conducted its 2nd seminar during the Singapore Maritime Week in April 2024, presenting and discussing two MTF reports ("Guidelines to Develop and Implement a Safety management System for Alternative Fuels on Board Ships" and "Safety Considerations for Establishing Green Shipping Corridors"). The seminar was well attended (77 participants out of 150 registered) and two panels with industry and MTF representatives were conducted, see below for snapshots.

Webinars

MTF conducted its 1st webinar in 2024 presenting the report on "Guidelines for the Development of Liquified Hydrogen Bunkering Systems and Procedures" a week after its presentation at IMO. About 60 participants were online out of 163 registered. The recording of the webinar is available on the MTF website.

Media coverage

Each report is published on the MTF website and a press release is sent to a list of maritime-focused media organizations. This helped to make MTF more visible although we have not recorded reporting on the best-known media channels such as, e.g., Lloyd's List and Tradewinds.

The report on "Guidelines to Develop and Implement a Safety management System for Alternative Fuels on Board Ships" was covered in two magazines/newsletters distributed by external stakeholders BIMCO and the Nautical Institute, who initially contributed to the report.

Online presence

The MTF website (www.maritimetechnologiesforum.com) was upgraded in 2024 to better enable better access to the MTF publications and news.

Outlook 2025

We are working to provide more guidance in 2025 related to safety management, selected technologies and procedures to accelerate a safe maritime decarbonization.

Our focus on operational safety management continues with the publication of new "Guidelines to Develop and Implement a Safety Management System for Ammonia-fuelled Ships" which will also be submitted to IMO.

We are publishing two reports on technology implementation: "Safe Onboard Carbon Capture and Storage" and "Safe Carriage of Electric Vehicles."

And we are working on two guidelines to streamline and to ensure safe execution of industry processes: "Guidelines for conducting Qualitative Risk Assessments (HAZIDs, HAZOPs) on alternative-fuelled ships" and "Guidelines for Safe Inspection of Methanol-fuelled Ships."

To further promote MTF events and results, MTF started a LinkedIn channel (https://www.linkedin.com/company/maritime-technologies-forum-mtf) and the reader of this report is invited to follow.

References

Longva, Tore, et al. (2024): Revised Framework for Assessing Decarbonization Technologies and Alternative Energy Carriers, available at https://www.maritimetechnologiesforum.com/documents/2023-MTF-framework-update.pdf

Mildal, Simen Diserud, et al. (2024): Safety Considerations for Establishing Green Shipping Corridors, available at https://www.maritimetechnologiesforum.com/documents/2024-mtf-safety-considerations-for-establishing-green-shipping-corridors-report.pdf

Osberg, Torill G, et al. (2024): Guidelines for the Development of Liquefied Hydrogen Bunkering Systems and Procedures, available at https://www.maritimetechnologiesforum.com/documents/2024-mtf-LH2-bunkering-guidelines.pdf

Padeti, Joshua, et al. (2024): Updated Fuels Evaluation through the MTF Framework for Assessing Decarbonization Technologies and Alternative Energy Carriers, available at https://www.maritimetechnologiesforum.com/documents/2024-MTF-framework-update-fuels-evaluation-FINAL.pdf

Williams, Yildiz, et al. (2024): Guidelines to Develop and Implement a Safety Management System for Alternative Fuels onboard Ships, available at https://www.maritimetechnologiesforum.com/documents/2024-mtf-ism-guideline-report-April-4-2024.pdf

Japan, Norway, Singapore and the United Kingdom (2024): Guidelines for the Development of Liquefied Hydrogen Bunkering Systems and Procedures, submitted to IMO as CCC10/INF.16

Singapore, United Kingdom, BIMCO, ICS and the Nautical Institute (2024): Guidelines to Develop and Implement a Safety Management System for Alternative Fuels onboard Ships, submitted to IMO as MSC109/INF.16

MTF members

MTF is a group of Flag States and Classification Societies, established in 2021. The Flag State administrations include Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan; the Norwegian Maritime Authority (NMA); the Maritime and Coastguard Agency (MCA), United Kingdom; and the Maritime and Port Authority of Singapore (MPA). The Classification Society members are ABS, ClassNK, DNV, LR.

Chair of Executive Committee: Lars Lippuner, Director UK Customer Maritime Services, MCA

Chair of Working Group: Dr. Pierre C Sames, Strategic Development Director, DNV

Contact

Please contact **contact@maritimetechnologiesforum.com** in case of questions or comments.

MARITIME TECHNOLOGIES FORUM
LEADING THE MARITIME WORLD FORWARD