

# IMO's ongoing work on onboard carbon capture and storage (OCCS) systems

OCCS Technical Seminar – 11 September 2025



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# Work plan for the development of a regulatory framework for the use of OCCS

- **Goal:** develop a **regulatory framework** for OCCS use, to **reduce net GHG emissions** from ships **without negatively affecting the environment**
- **Objectives:**
  - avoiding **emissions to air** and **discharges to sea** that are harmful to the environment and ensuring **traceability** of the captured carbon;
  - consider **legal barriers** that may hinder the OCCS **use** and **transportation** and **transfer** of captured carbon to safe permanent storage or utilization;
  - facilitate access to **certified reception facilities** for the value chain for permanent storage or utilization of captured carbon;
  - enable recording and reporting of relevant **data**; and
  - develop options that take into account GHG emission reductions from onboard carbon capture in the **IMO GHG regulatory framework**.



Approved by:  
**MEPC 83**

Work completion:  
**2028**

# Work plan for the development of a regulatory framework for the use of OCCS

- **Boundaries:**
  - **CO<sub>2</sub> accounting** issues = LCA framework (but affects regulatory framework)
  - **Safety** aspects: MSC
  - Technology **neutrality**
  - Etc.
- **Tasks** identified in the OCCS work plan under each objective:
  - Identify the **environmental risks** of the different OCCS technologies
  - Review the status of **technological development** of onboard carbon capture applications
  - Facilitate access to **certified reception facilities** for the value chain for permanent storage or utilization of captured carbon
  - Develop **enforcement** provisions
  - Etc.

## Correspondence Group (coordination: Norway)

Implementation of the OCCS work plan: currently developing **draft guidelines on testing, survey and certification on OCCS** including development of provisions to minimize emissions/discharge of substances that are harmful to the environment

Reporting to MEPC 84 (Spring 2026)

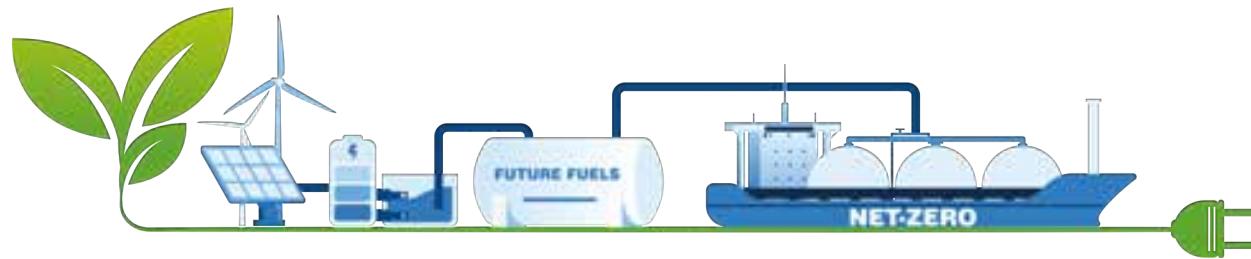
# Draft work plan to prepare for the entry into force of the IMO Net-Zero Framework (MEPC/ES.2/3)

	2025	2026		2027	2028	
<u>Work streams</u>	MEPC/ES.2/ ISWG-GHG 20 (Autumn)	MEPC 84 (Spring)	MEPC 85 (Autumn)	MEPC 86 (Summer)	MEPC 87 (Spring)	MEPC 88 (Autumn)
<b>Development of a regulatory framework for the use of onboard carbon capture and storage (OCCS)</b>						
Development of a regulatory framework for the use of onboard carbon capture and storage (OCCS) in accordance with the Work plan approved by MEPC 83 (MEPC 83/17/Add.1, annex 8)	Avoiding emissions to air and discharges to sea that are harmful to the environment and ensuring traceability of the captured carbon					
	Consideration and development of guidelines on testing, survey, and certification of OCCS		Adoption of guidelines	Develop provisions for enforcement		
	Consideration of legal barriers that may hinder the use of OCCS and transportation and transfer of the captured carbon to safe permanent storage or utilization					
	Facilitate access to certified reception facilities for the value chain for permanent storage or utilization of captured carbon					
	Enable recording and reporting of relevant data					
	Develop options that take into account GHG emission reductions from onboard carbon capture in the IMO GHG regulatory framework					



# Accounting of CO<sub>2</sub> captured on board ships

- **2024 LCA Guidelines:** emission credit from carbon capture and storage where capture of CO<sub>2</sub> occurs onboard ( $e_{\text{ooccs}}$ ) is reflected in the Tank-to-Wake emissions formula.
  - This should properly account for the emissions avoided through the capture and sequestration of emitted CO<sub>2</sub>. From the emission credit, all the emissions resulting from the process of capturing, and transporting the CO<sub>2</sub> up to the final storage (including the emissions related to the injection, etc.) need to be deducted.
- The **GESAMP-LCA WG**, an independent expert group undertaking a scientific review of the IMO LCA framework is currently working on developing the accounting methodology for carbon capture and storage (CCS) and OCCS including the development of flowcharts of carbon sources and sinks to avoid double counting.



**GESAMP**  
Joint Group of Experts on the  
Scientific Aspects of Marine  
Environmental Protection

# Safety requirements for OCCS systems

- **MSC 110** developed a list of alternative fuels and new technologies and identified barriers and gaps in IMO instruments that impede the safe use of these fuels and technologies (MSC 110/WP.9)
- MSC 110 instructed CCC to give high priority, starting at **CCC 12** (September 2026), to address **OCCS-related gaps and barriers** and develop safety requirements for OCCS systems on ships.
  - E.g. clarifying how the captured carbon is classified, (e.g. waste, cargo or overboard discharge)
  - Consider whether amendments to the IMDG Code are needed for the storage and transport of CO<sub>2</sub> resulting from OCCS systems



# The Future Fuels and Technology (FFT) Project

Provide **technical analysis** and the **latest data** to support **evidence-based decision making**

Support the implementation of the **2023 IMO GHG Strategy**



## Workstream 1 Technical analysis

Global studies and research to support IMO's Member States decision making



## Workstream 2 Online information Portal

Free and easy access to the latest information on maritime decarbonization



## Workstream 3 Outreach and communication

Technical seminars on alternative marine fuels and technologies and promotion of the 2023 IMO GHG Strategy

# Thank you.

## International Maritime Organization

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