

**Multi-year Expert Meeting on Transport, Trade  
Logistics and Trade Facilitation  
11th Session**

**Maritime Transport in Times of Polycrisis**

23-24 October 2024, Geneva

**The Role of Ports in Facilitating the Energy  
Transition in the Maritime Sector**

Presentation By

**Victor Shieh**

International Association of Ports and Harbors

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# The role of ports in facilitating the energy transition in the maritime sector



UNCTAD

Geneva, 23-24 October 2024

Victor Shieh, Strategy and Communications Director, IAPH



# IAPH session at IMO on progress implementing the Ports Resolution



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MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
80th session  
Agenda item 7

MEPC 80/7/2  
28 April 2023  
Original: ENGLISH  
Pre-session public release:

## REDUCTION OF GHG EMISSIONS FROM SHIPS

World ports progress in delivering on the key areas identified  
by resolution MEPC.366(79)

Submitted by IAPH

### SUMMARY

**Executive summary:** This document provides a progress report on the efforts and initiatives of world ports towards the areas identified under resolution MEPC.366(79) on *Voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships*. The document informs on the status of relevant IAPH and world ports' initiatives and highlights remaining challenges while making recommendations to overcome these.

**Strategic direction,  
if applicable:** 3

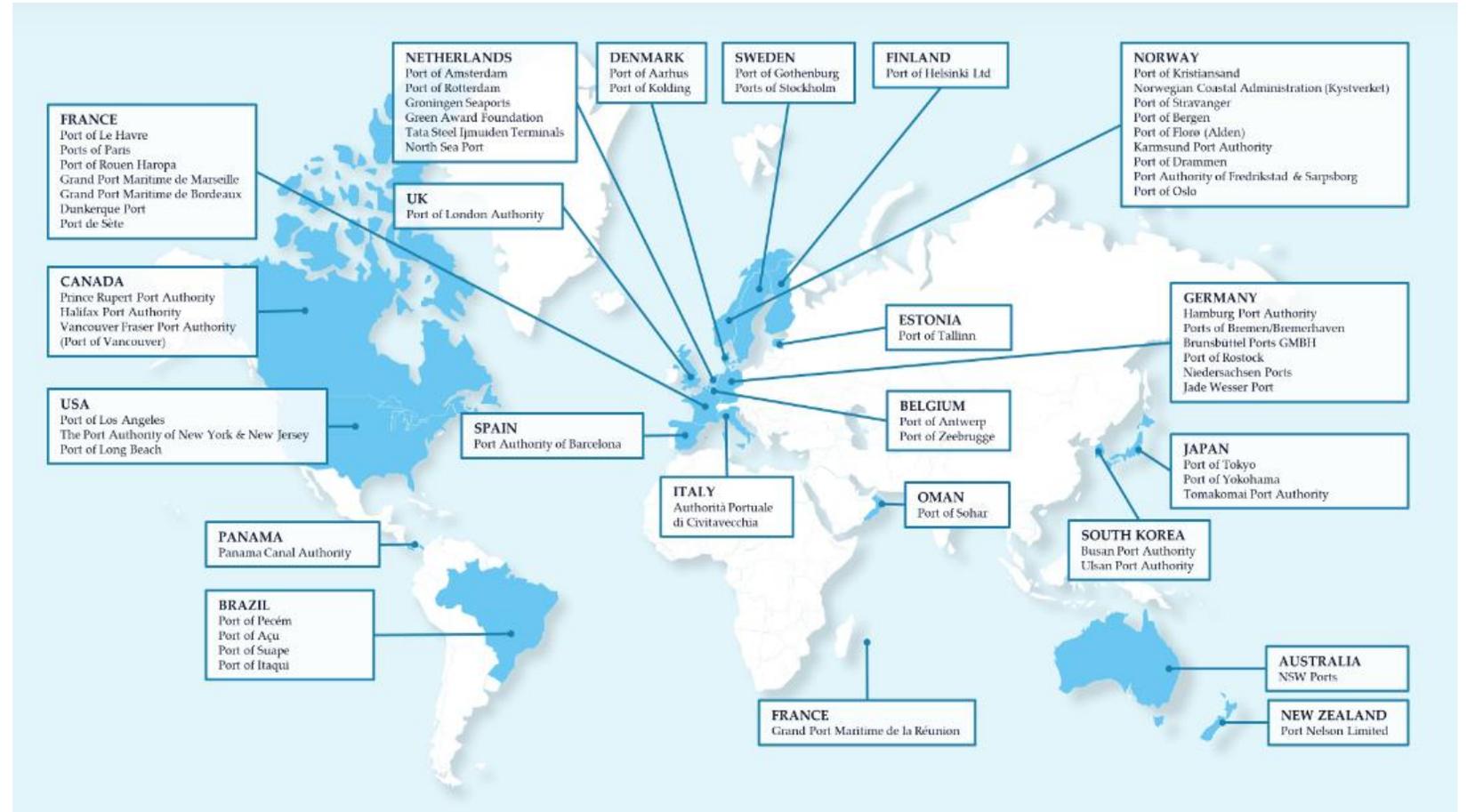
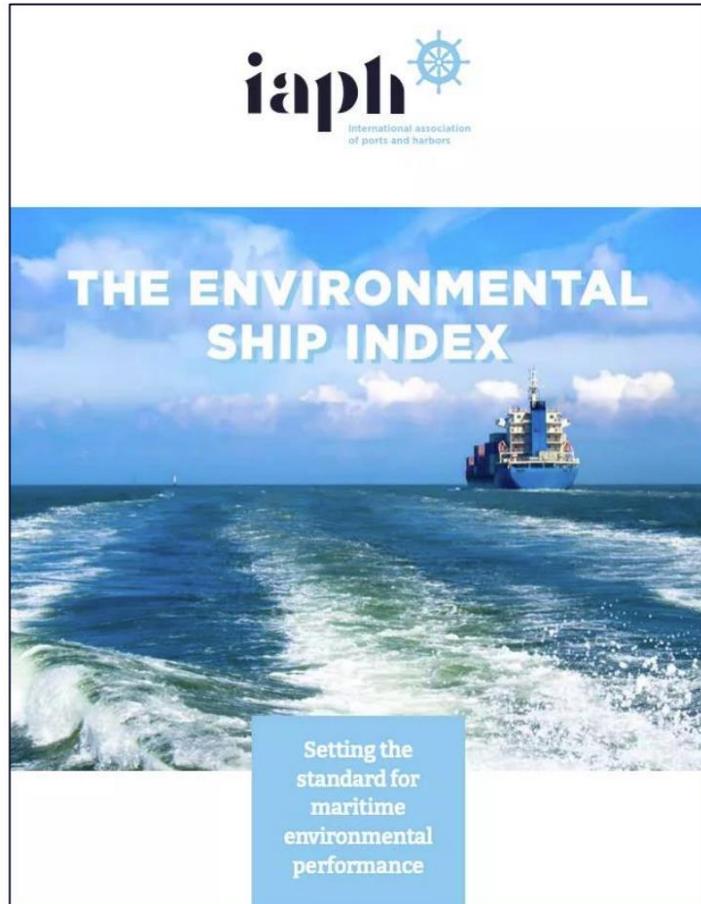
**Output:** 3.2

**Action to be taken:** Paragraph 28

**Related documents:** MEPC 79/7/14; MEPC 80/7/6; FAL 46/5/1 and resolutions MEPC.323(74) and MEPC.366(79)



# Environmental Ship Index (ESI)



<https://www.environmentalshipindex.org>

*New ESI 2026: adjusting baselines, comprehensive GHG emissions and innovation modules*



## ESI

Environmental Ship Index

*The Environmental Ship Index continues to grow its user base and evolve as a global tool for decarbonisation and environmental care*

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ESI 2.0

## ESI Evolution

ESI until 2026

ESI  
Core

NO<sub>x</sub>  
SO<sub>x</sub>  
CO<sub>2</sub>  
OPS

ESI  
Noise  
Above  
water

ESI  
At Berth

# ESI

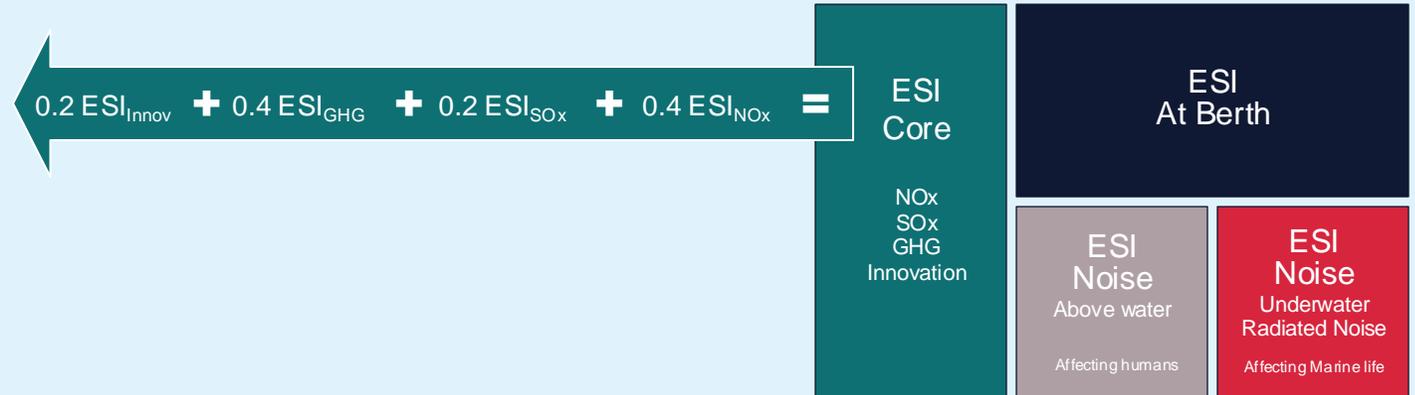
Environmental Ship Index

*The Environmental Ship Index continues to grow its user base and evolve as a global tool for decarbonisation and environmental care*

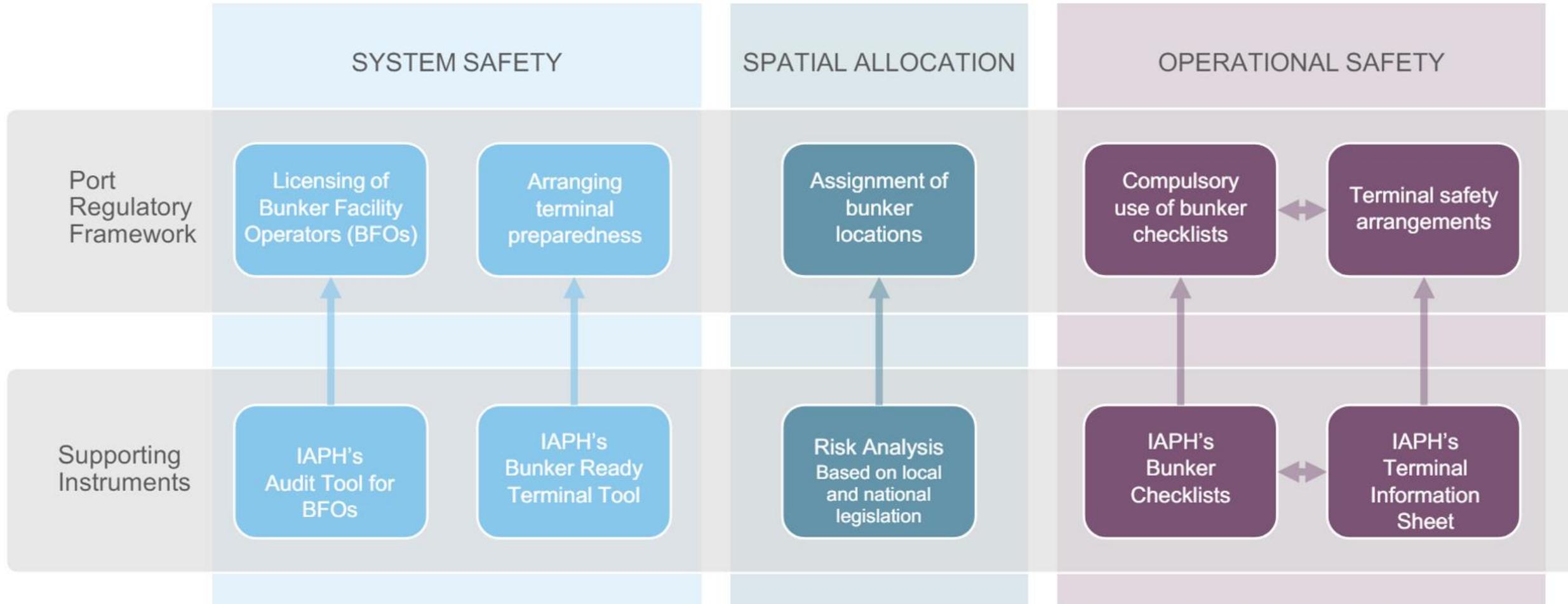
ESI 2026

## ESI Evolution

ESI after 2026



# Clean Marine Fuels (CMF) safety framework and toolkit



*Ongoing work for completing the full toolkit for hydrogen, ammonia, and methanol*

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## Future Fuels

*IAPH is speeding the industry's journey to Net Zero with a growing suite of tools to support bunkering of future fuels*

Launched at the IAPH 2024 Conference:

Clean Marine Fuels Audit Tool (all fuels)



**APPENDIX 1 – GROUPED REFERENCES**

**USAGE**  
The audit checklist re...  
The best practice ma...  
References that repe...  
References that ma...

REFERENCE NR.	CO
*1.1	G1 S11 S14 S15 S16 S17 S1
*1.2	S26 S42 S36 S28 S25 S33 S1 S4

**GROUP REFERENCE**

NR	AUDIT ITEM COMPANY OFFICE	RESULT	AUDIT ITEM BUNKER FACILITY	RESULT	REALITY CHECK (OPERATIONAL AUDIT ITEM)	RESULT
6-3	Has the comp responsible pe follow-up of nc					
Clarification and ref *6.1; *6.2; G6; S1; S7						
Auditor findings: Cl						
6-4	Does the comp that supports r safety-related					
• Can the cor system beir						
Clarification and ref						
Auditor findings: Cl						
6-5	Are safety-rela incidents, near occurrences) c company polic system?					
Clarification and ref						
Auditor findings: Cl						

**EXPLANATION AND USAGE OF THE AUDIT CHECKLIST**

**Checklist guidance**  
For each system req

Colour supp docu suit

NR.	AUDIT
1	Company/Mar are procedu
• Sub quest	
• Sub quest	
o Sub item	
o Sub item	

**CLARIFICATION & RE**

**AUDIT FINDINGS:**

Here the at their findi audit items

**IAPH Audit Tool**  
for auditing Bunker Facility Operators

**Audit Checklist**  
All fuel facilities

The Clean Marine Fuels working group

Edition 2.0



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# Future Fuels

*IAPH is speeding the industry's journey to Net Zero with a growing suite of tools to support bunkering of future fuels*

In development:

**Terminal Call Checklists**  
for  
**Liquefied Gas, Alcohol-Based, Ammonia**

Liquefied Gas Bunker Checklist  
Ship to Ship - version A  
BIN: \_\_\_\_\_

**PART B2  
PRE-OPERATION - PIC BUNKER VESSEL**

B2	CHECK	STATUS	CO
1	Mooing arrangement is effective	<input type="checkbox"/>	Yes
2	Firefighting equipment is ready for use	<input type="checkbox"/>	Yes
3	Sufficient area illumination	<input type="checkbox"/>	Yes A
4	The receiving vessel can sail under its own power in a safe and non-obstructed direction.	<input type="checkbox"/>	Yes
5	The restricted area is free of other ships, unauthorized persons, objects, and ignition sources.	<input type="checkbox"/>	Yes
6	Vessel entrance is controlled, and proper safety information is provided at the gangway	<input type="checkbox"/>	Yes
7	Safety measures within the safety area are observed	<input type="checkbox"/>	Yes
8	Measures for the prevention of falling objects onto the bunker vessel are observed	<input type="checkbox"/>	Yes
9	External doors, portholes and accommodation ventilation inlets are closed as per operations manual	<input type="checkbox"/>	Yes
10	Appropriate personal protective equipment is identified and available	<input type="checkbox"/>	Yes
11	Emergency water spray system is ready for use	<input type="checkbox"/>	Yes
12	Spill arrangements are effective and suitable for the applicable fuel	<input type="checkbox"/>	Yes
13	Hull and deck protection against low temperature is in place	<input type="checkbox"/>	Yes
14	Bunker pumps and compressors are in good working order	<input type="checkbox"/>	Yes
15	Control valves are well maintained and in good working order	<input type="checkbox"/>	Yes
16	Unused bunker connections are blanked and fully secured	<input type="checkbox"/>	Yes
17	Fire control plans are readily available	<input type="checkbox"/>	Yes
18	An International Shore Connection has been provided	<input type="checkbox"/>	Yes
19	Planned SIMOPs are in accordance with the safety procedures and risk mitigation in ship's operational documentation and JPBO	<input type="checkbox"/>	Yes
20	SIMOPs will be compliant with local regulations and restrictions	<input type="checkbox"/>	Yes

LG STS Version A - Edition 4.0

**Schematic Overview of the Bunker Process**

Below is an overview of the specific STS bunker process in a project-based approach:

**CONTENTS**

**CONTENTS**  
WHO IS THIS CHECKLIST FOR?  
USED ABBREVIATIONS  
SCHEMATIC OVERVIEW OF THE BUNKER PROCESS  
INSTRUCTIONS FOR COMPLETING THE SHIP-TO-SHIP BUNKER CHECKLIST

PART A: PREPARATION PHASE  
PART B: PRE-OPERATION PHASE  
PART C: ALIGNMENT AND AGREEMENT PHASE  
PART D: CONNECTION TESTING PHASE  
PRE-TRANSFER DECLARATION  
PART E: TRANSFER PHASE  
PART F: POST-OPERATION PHASE  
POST-OPERATION DECLARATION  
SPECIAL NOTES  
Checklist code  
When unable to check the Yes box  
Agreed Physical Quantity

**PART A1** PREPARATION - COMPATIBILITY ASSESSMENT TOPICS  
**PART A2** PREPARATION - JOINT PLAN OF BUNKER OPERATIONS TOPICS  
**PART A3** GENERAL INFORMATION AND BUNKERING IDENTIFICATION NUMBERS  
**PART B1** PRE-OPERATION - PIC BUNKER VESSEL  
**PART B2** PRE-OPERATION - PIC BUNKER VESSEL  
**PART B3** PRE-OPERATION - PIC SITE OPERATOR  
**PART C1** ALIGNMENT AND AGREEMENT - PICS BUNKER VESSEL RECEIVING VESSEL  
**PART C2** ALIGNMENT AND AGREEMENT - PICS BUNKER AND RECEIVING VESSEL  
**PART C3** ALIGNMENT AND AGREEMENT - PICS BUNKER VESSEL  
**PART C4** ALIGNMENT AND AGREEMENT - PICS RECEIVING VESSEL  
**PART C5** continued ALIGNMENT AND AGREEMENT - PICS BUNKER AND RECEIVING VESSEL  
**PART D1** CONNECTION TESTING - PIC BUNKER VESSEL  
**PART D2** CONNECTION TESTING - PIC RECEIVING VESSEL  
**DECLARATION ON PARTS B-D**  
**PART E1** TRANSFER - PIC BUNKER VESSEL  
**PART E2** TRANSFER - PIC RECEIVING VESSEL  
**PART E3** TRANSFER - PIC SITE OPERATOR  
**PART F1** POST-OPERATION - PIC BUNKER VESSEL  
**PART F2** POST-OPERATION - PIC RECEIVING VESSEL  
**PART F3** POST-OPERATION - PIC SITE OPERATOR  
**DECLARATION ON PART F**

LG STS Version A - Edition 4.0

**Bunker Checklist**  
Liquefied Gas Series  
Version A  
Project-based bunker operations  
The Clean Marine Fuels working group  
LG STS Version A - Edition 4.0

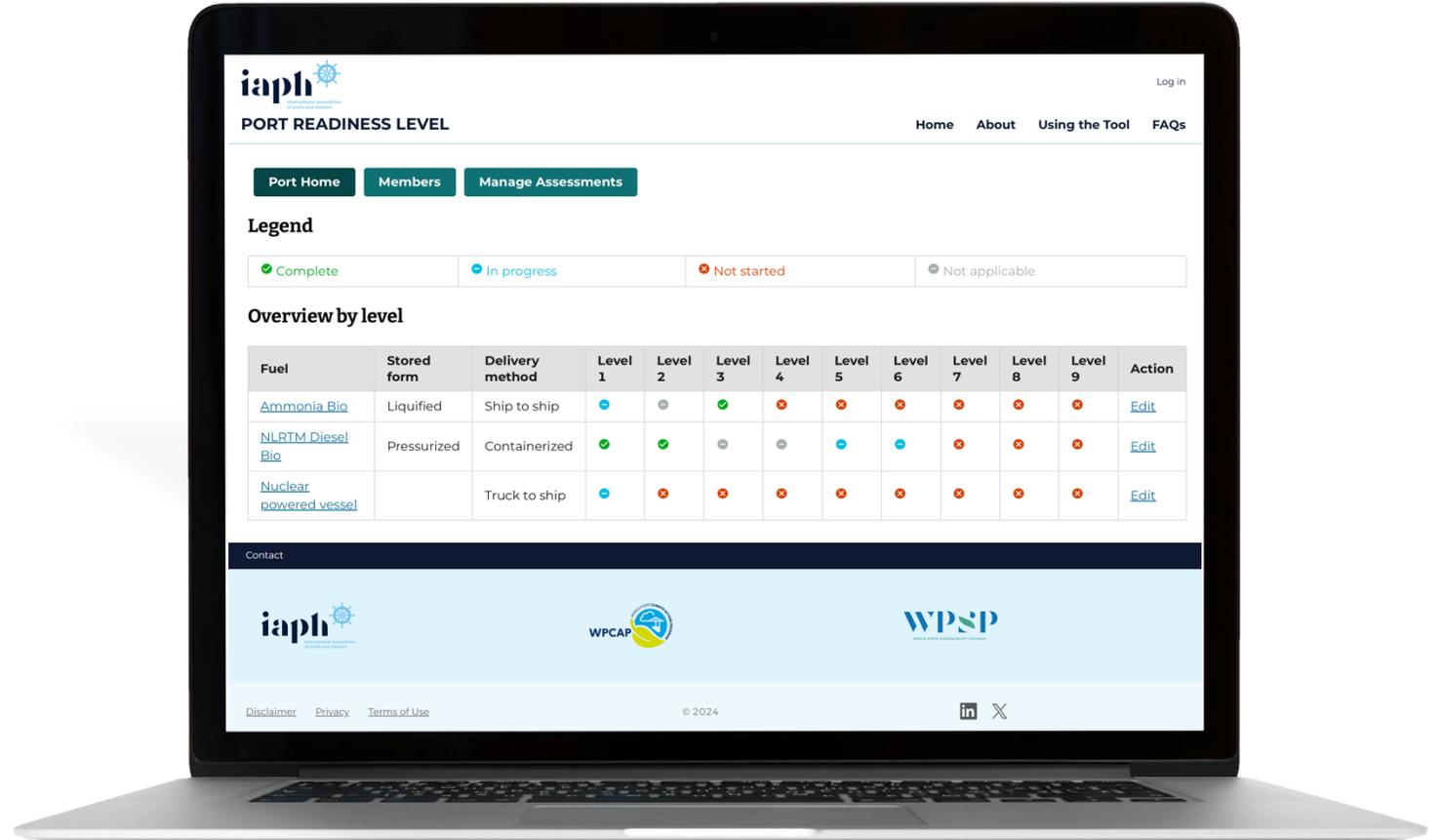
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## Future Fuels

*IAPH is speeding the industry's journey to Net Zero with a growing suite of tools to support bunkering of future fuels*

### Port Readiness Level for Marine Fuels (PRL-MF) digital assessment tool

A Fuel-agnostic assessment framework ports can use to self-assess their readiness and identify areas requiring further development to facilitate bunkering of a new low- or zero-carbon marine fuel



Now available digitally.  
Visit <https://fuelreadyports.org>

# Port Readiness Level for Marine Fuels

PRL-MF 9	Deployment	Market penetration and growth for bunkering of target fuel
PRL-MF 8		Full capabilities for bunkering of target fuel
PRL-MF 7		Bunkering of target fuel established on a project basis
PRL-MF 6		Pilot-scale demonstration of bunkering of target fuel
PRL-MF 5	Development	Framework for bunkering of target fuel implemented and tested
PRL-MF 4		Framework for bunkering of target fuel drafted, timeline developed
PRL-MF 3	Research	Detailed research, analysis, and conclusions
PRL-MF 2		Stakeholder interest and feasibility assessment
PRL-MF 1		Foundational background information

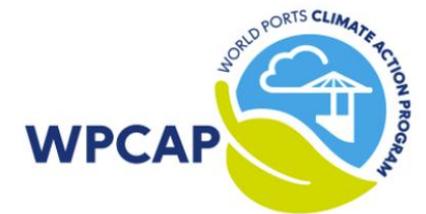


**PRL application**

For **bunkering** operations

For vessel calls **sailing** on new fuels

For vessel calls transporting new fuels as **cargo**



*First digital PRL MF assessment tool for bunkering to be launched in October*



# CEM Hubs initiative



## CLEAN ENERGY MARINE HUBS

AN INITIATIVE OF THE CLEAN ENERGY MINISTERIAL

**Together** Governments and industry will seek to establish Clean Energy Marine Hubs across the globe, **providing low-carbon fuels for all**

Initial supporting governments



Brazil



Canada



Greece



Norway



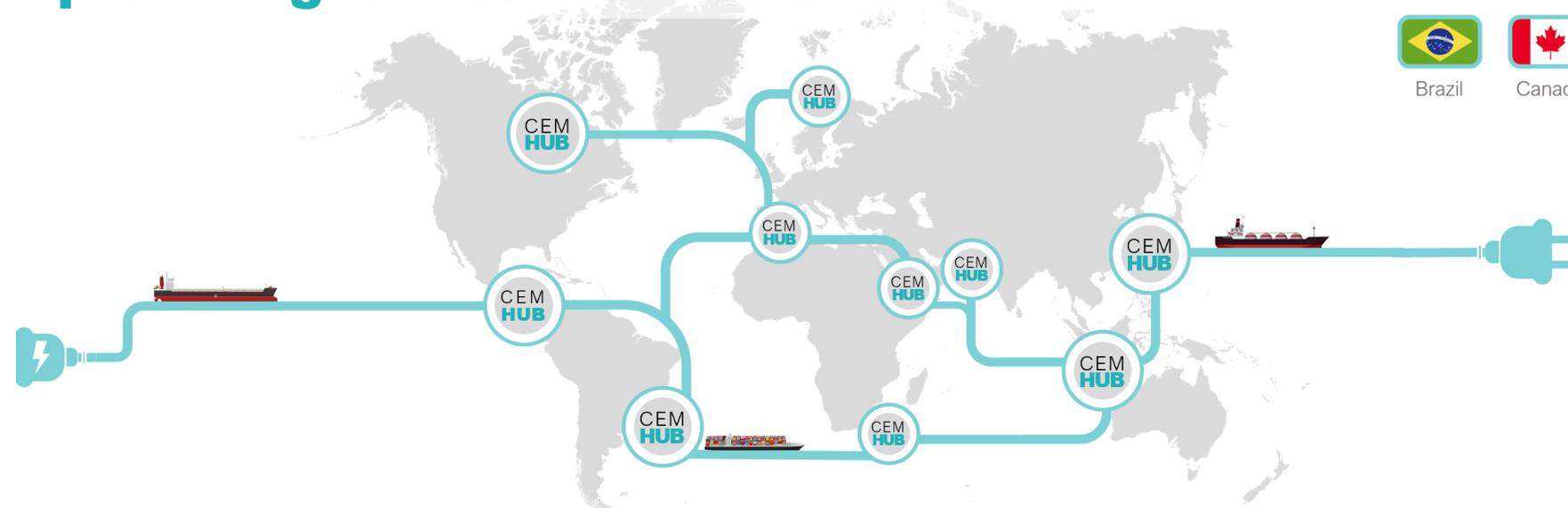
Panama



UAE



Uruguay



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## WPSP

World Port Sustainability Program

*A highly competitive awards selection caps a strong year for WPSP, the worldwide reference for ports' efforts in sustainability*

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Statistics project portfolio



WPSP Database of sustainability projects

401 PROJECTS

161 PORTS

65 COUNTRIES



[www.sustainableworldports.org](http://www.sustainableworldports.org)

Partners of  
Port Endeavor :



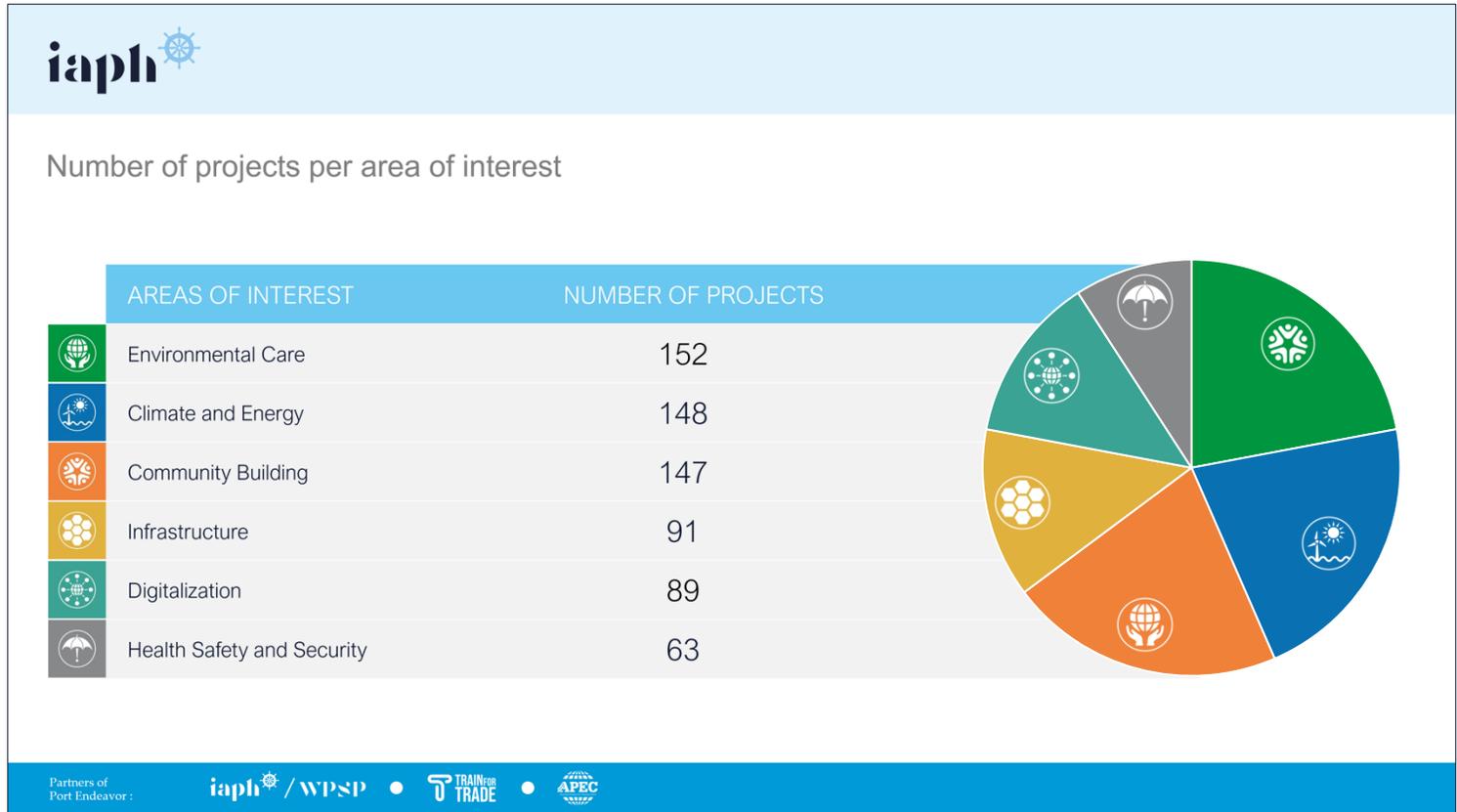
7

**WPSP**

World Port Sustainability Program

*A highly competitive awards selection caps a strong year for WPSP, the worldwide reference for ports' efforts in sustainability*

Statistics project portfolio



7

## WPSP

World Port Sustainability Program

*A highly competitive awards selection caps a strong year for WPSP, the worldwide reference for ports' efforts in sustainability*

### 2024 AWARDS Winners



## #IAPH2024 SUSTAINABILITY AWARDS WINNERS



### INFRASTRUCTURE



#### Port of Açu

Low-carbon Hydrogen and Derivatives Hub

### DIGITALIZATION



#### Freeport of Riga Authority

Seamless 5G Connectivity in the Baltic Sea

### CLIMATE AND ENERGY



#### Ulsan Port

Green Methanol and Bio-diesel Bunkering

### COMMUNITY BUILDING



#### Chennai Port

Championing Community Empowerment and Sustainable Growth

### ENVIRONMENTAL CARE



#### Port of Antwerp-Bruges

Species Protection Program

### HEALTH SAFETY & SECURITY



#### Ulsan Port

Port Cargo Working Safety Index

Thank you!

Victor Shieh  
IAPH Strategy and Communications Director  
victor.shieh@iaphworldports.org

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