

**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

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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

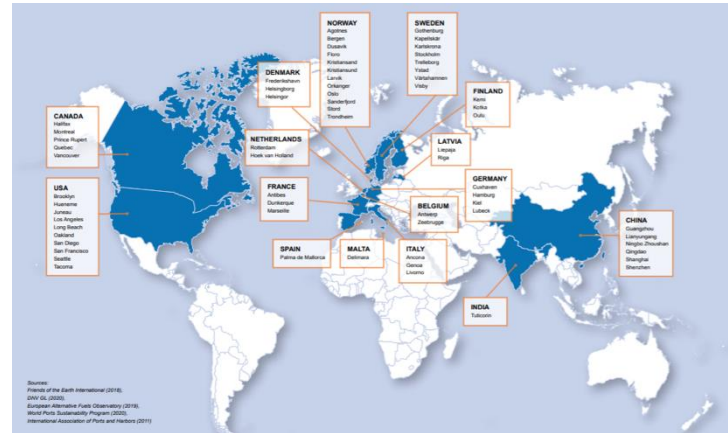
Victor Shieh, Strategy and Communications Director, IAPH

IMO Ports Resolution MEPC.366(79)

2

Voluntary cooperation between ports and shipping on GHG emission reduction from ships

- Onshore Power Supply
- Safe and efficient bunkering of low/zero carbon fuels
- Port incentives
- Port call optimization and JIT
- Green corridors and energy hubs



IAPH session at IMO on progress implementing the Ports Resolution



E

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

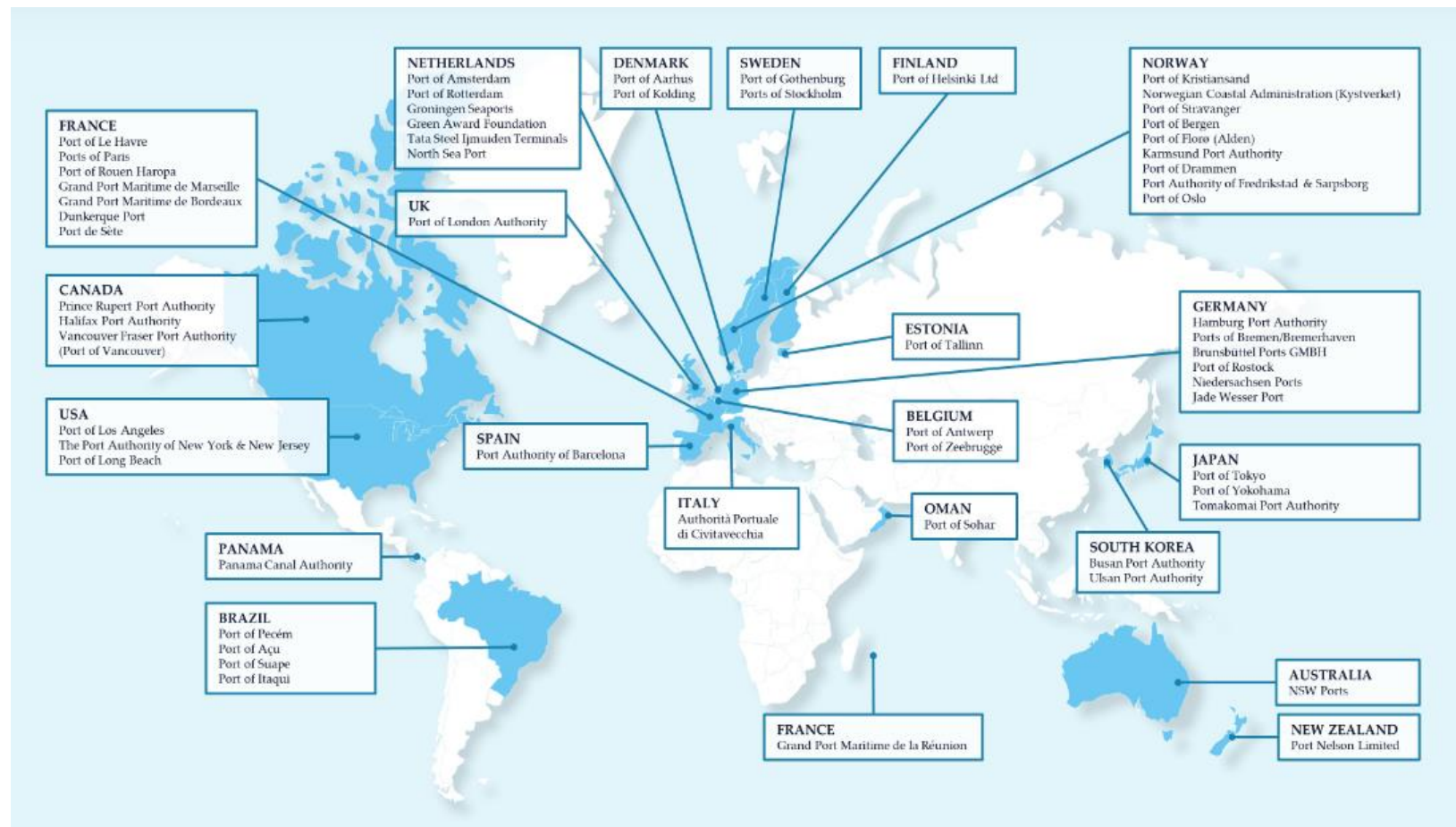
Action to be taken:

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

ESI 2.0

ESI Evolution

ESI until 2026

ESI
Core

NO_x
SO_x
CO₂
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

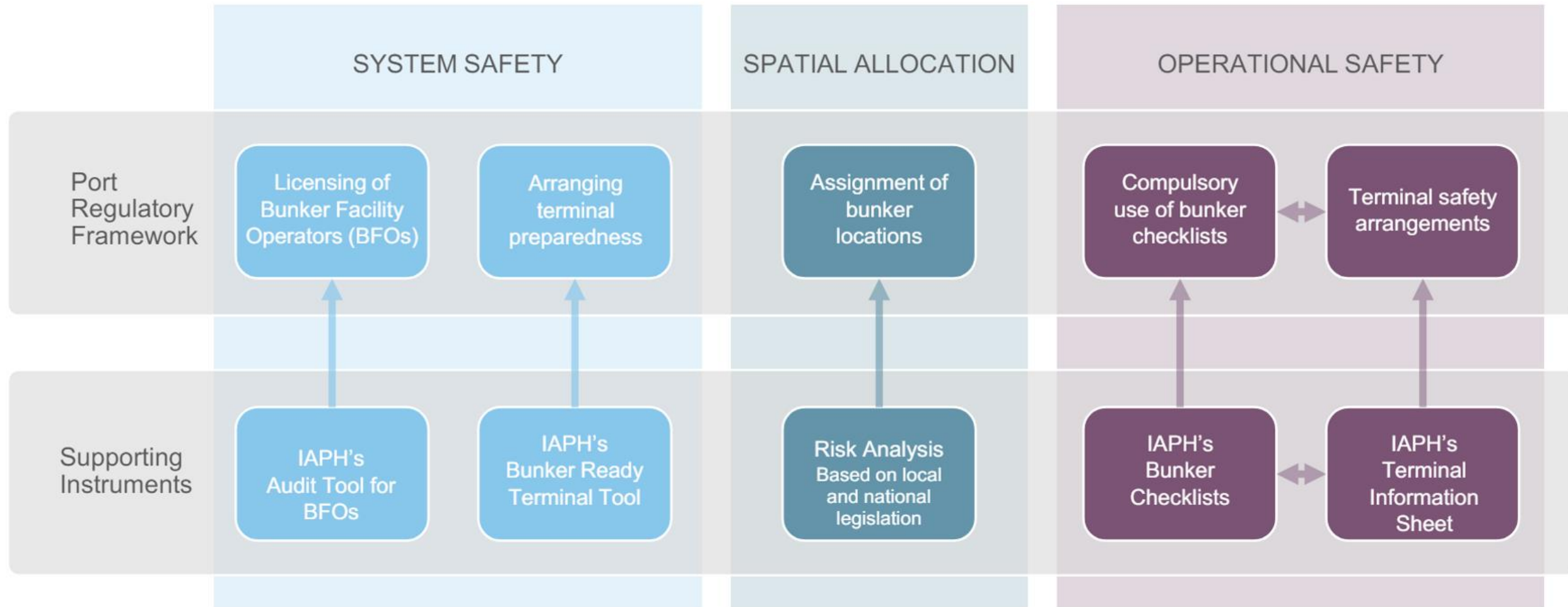
ESI Evolution

ESI after 2026



Clean Marine Fuels (CMF) safety framework and toolkit

7



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


6

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

GROUP REFERENCE

REFERENCE NR.	CO
*1.1	G1 S1 S14 S15 S16 S17 S1
*1.2	S2 S4 S3 S2 S2 S3 S1 S4

6-3 Has the comp
responsible pe
follow-up of no

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-rel
incidents, near
occurrences) c
company polic
system?

Clarification and ref

Auditor findings: Cl

IA7-3 - Audit Checklist - Edition 2.0



EXPLANATION AND USAGE OF THE AUDIT CHECKLIST

Checklist guidance
For each system req

Colour
suppl
docu
suita

NR.	AUDIT
1	Company/Mar - are procedu
	<ul style="list-style-type: none"> Sub quest Sub quest Sub item Sub item

CLARIFICATION & RE

AUDIT FINDINGS:

Here the au
their finding
audit items

IA7-3 - Audit Checklist - Edition 2.0



IAPH Audit Tool

for auditing
Bunker Facility Operators

Audit Checklist

All fuel facilities

The Clean Marine Fuels working group

Edition 2.0



6

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: _____

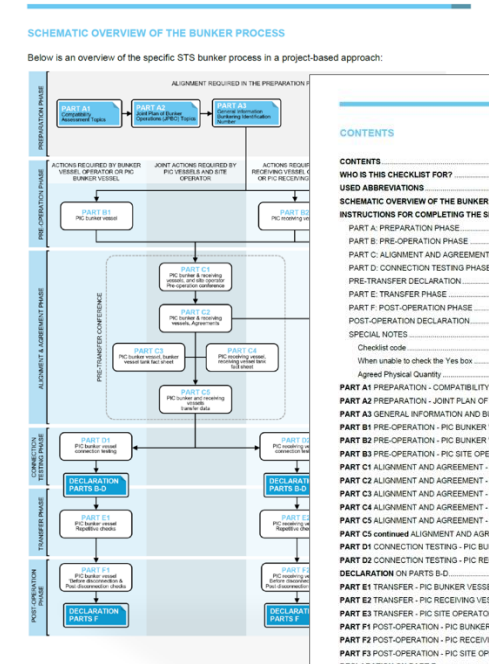
**PART B2
PRE-OPERATION - PIC BUNKER VESSEL**

B2	CHECK	STATUS	CO
1	Moorage 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 JPEO	<input type="checkbox"/> Yes	A
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:



LG STS Version A - Edition 4.0

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

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 - PIC'S BUNKER VESSEL RECEIVING VESSEL

PART C2 ALIGNMENT AND AGREEMENT - PIC'S BUNKER VESSEL

PART C3 ALIGNMENT AND AGREEMENT - PIC'S RECEIVING VESSEL

PART C4 ALIGNMENT AND AGREEMENT - PIC'S BUNKER AND RECEIVING VESSEL

PART C5 continued ALIGNMENT AND AGREEMENT - PIC'S 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

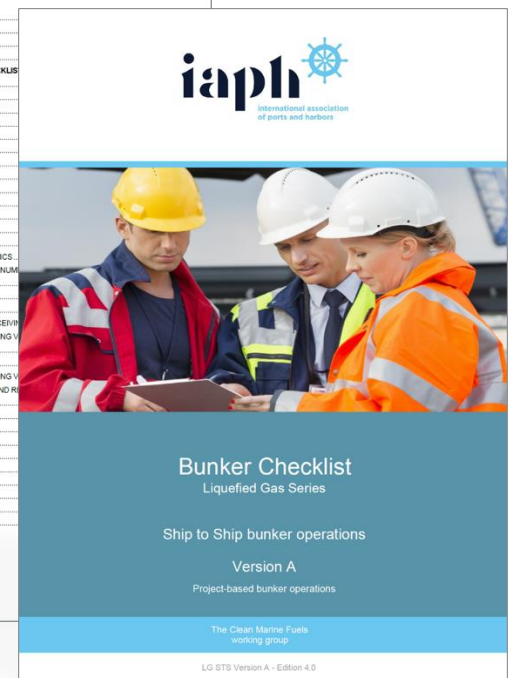
PART F1 POST-OPERATION - PIC BUNKER VESSEL

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

Ship to Ship bunker operations

Version A

Project-based bunker operations

The Clean Marine Fuels working group

LG STS Version A - Edition 4.0

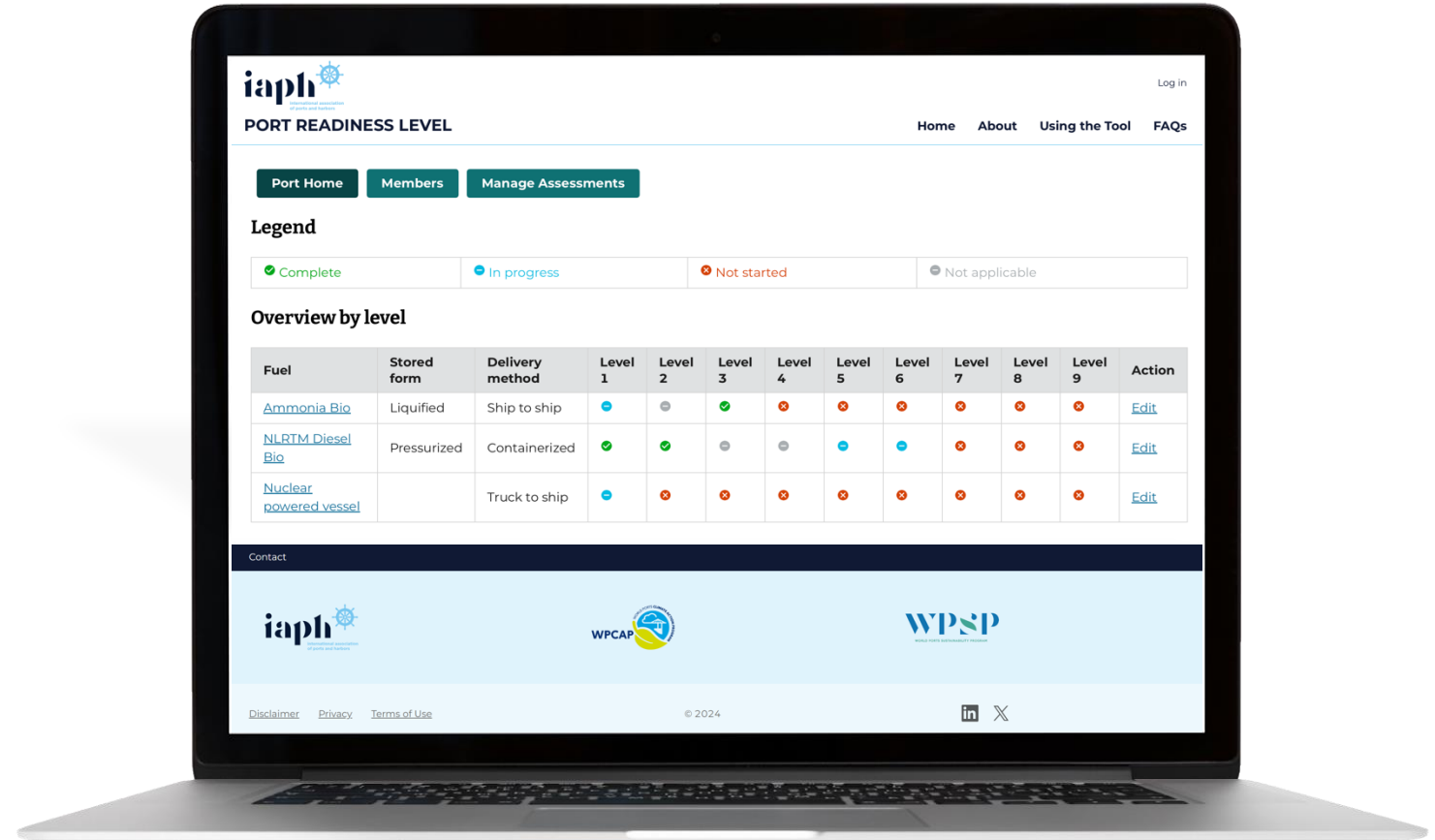
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Future Fuels

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

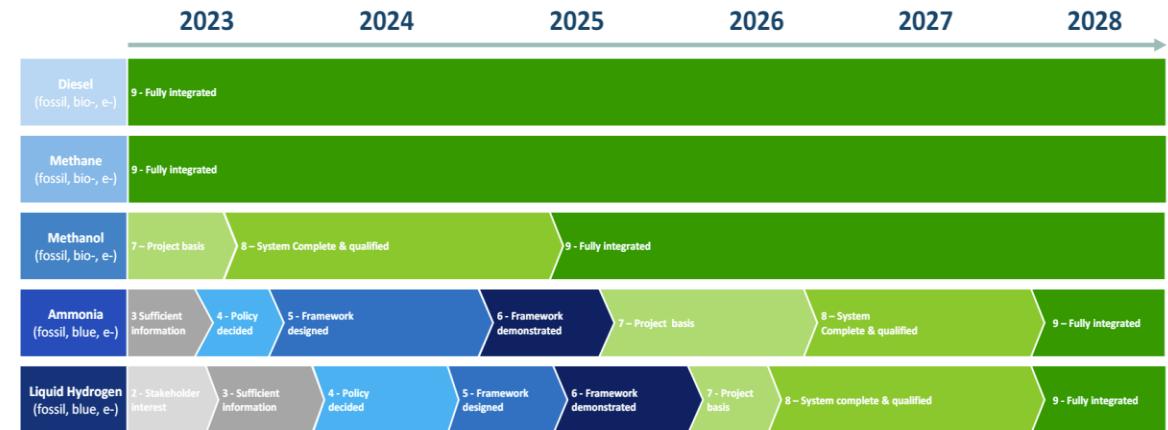


Now available digitally.
Visit
<https://fuelreadyports.org>

Port Readiness Level for Marine Fuels

11

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	Development	Pilot-scale demonstration of bunkering of target fuel
PRL-MF 5		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

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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



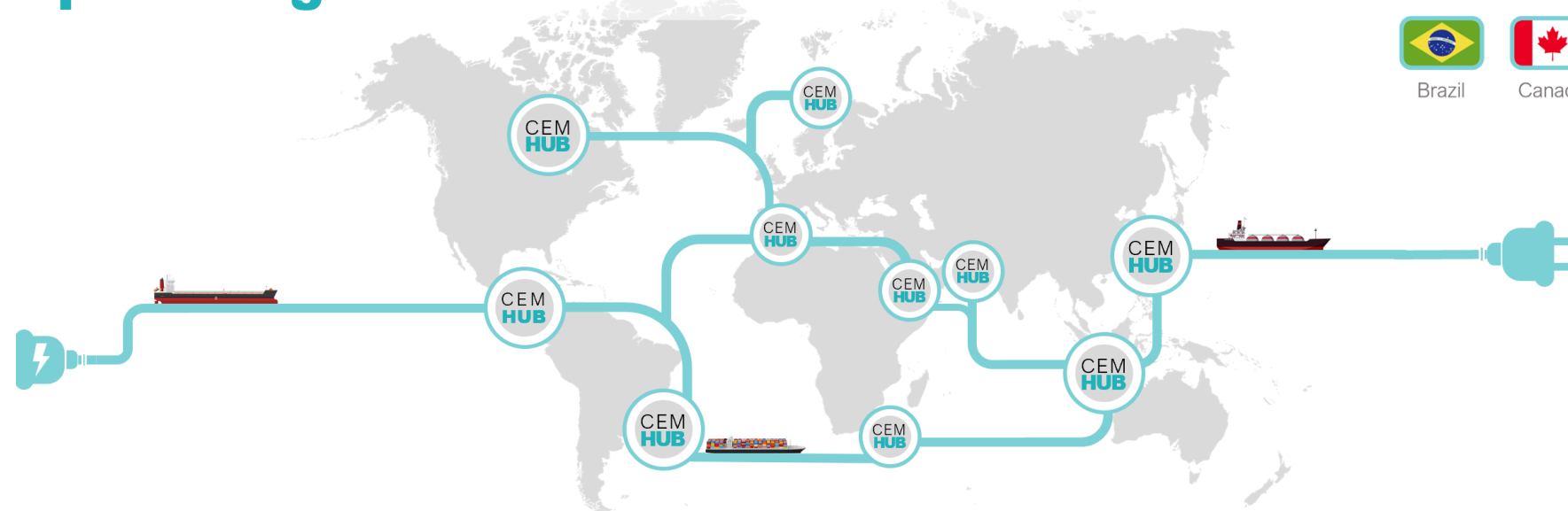
Panama



UAE



Uruguay



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



WPSP Database of sustainability projects

401 PROJECTS

161 PORTS

65 COUNTRIES




www.sustainableworldports.org

Partners of
Port Endeavor :





7

WPSP

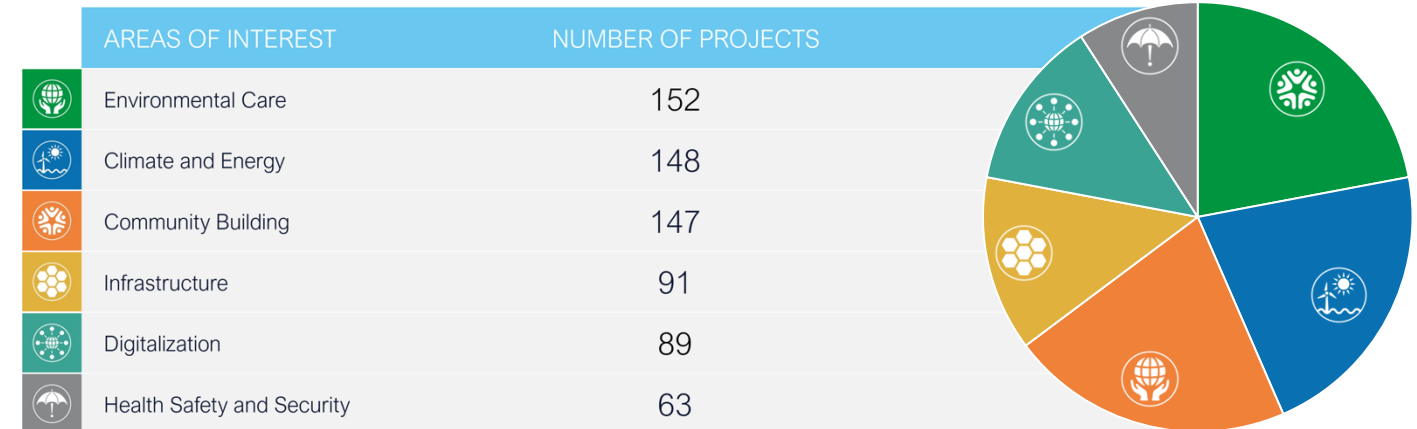
World Port Sustainability Program

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

Statistics project portfolio



Number of projects per area of interest



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

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

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