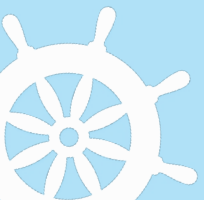


# Clean Marine Fuels working group

Driven to advance the transition towards clean marine fuels  
for decarbonisation and air quality improvement

# Content

- 1 About the CMF working group
- 2 The challenge and the tools we provide
- 3 Port empowerment: planning the near future



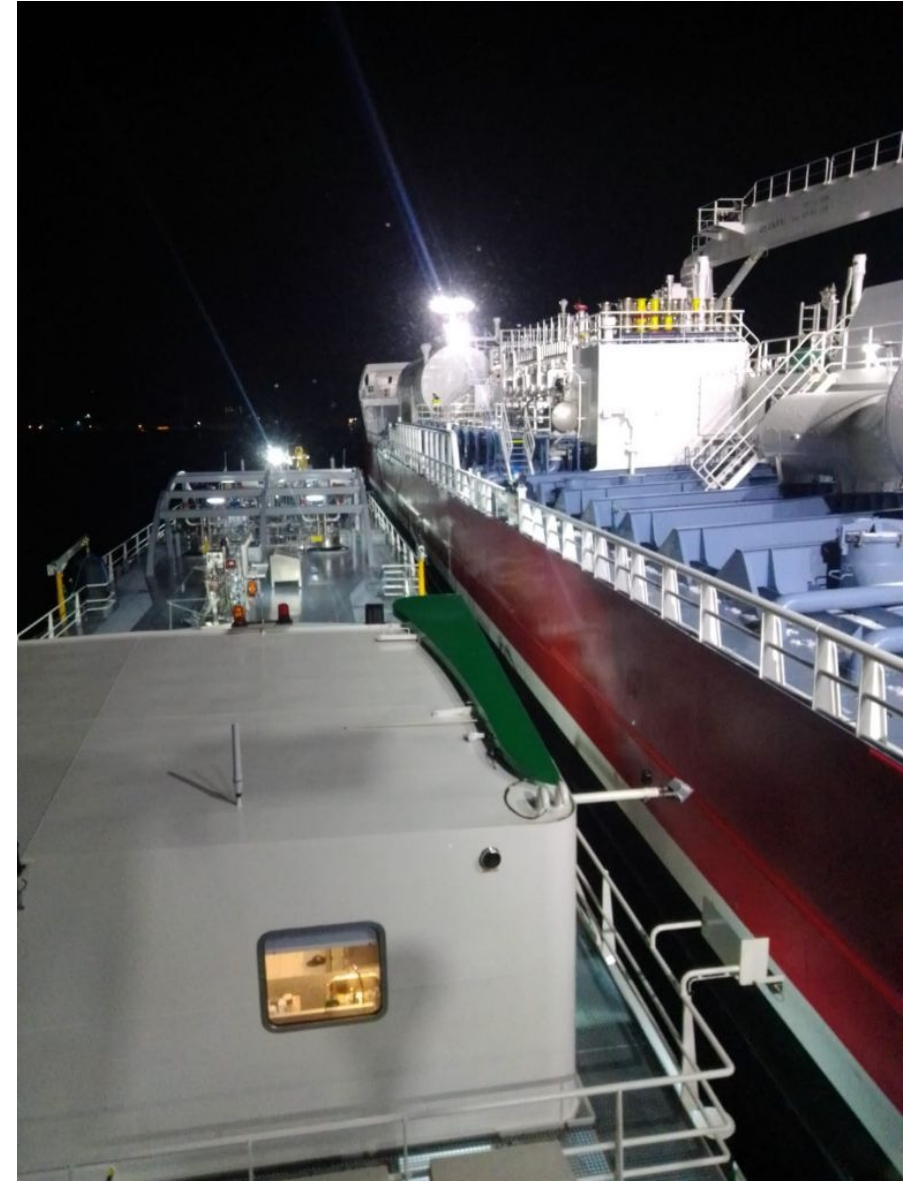
## Who we are, what we do



Empowering ports to facilitate, stimulate and regulate the supply of new clean marine fuels by providing expertise and guidance on safe and efficient bunker operations.

## Our goal

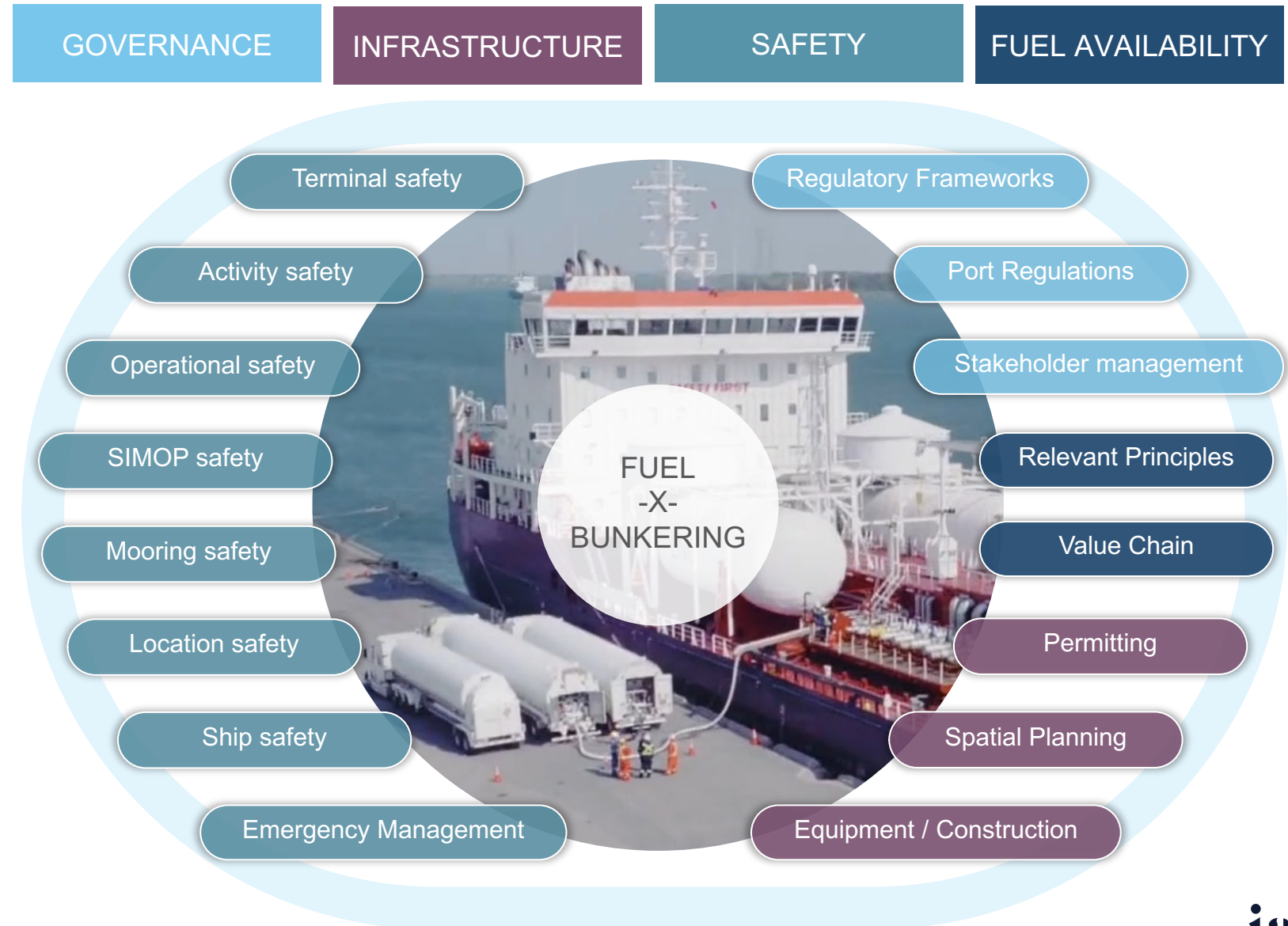
By 2030 the safe and efficient supply of new clean marine fuels in ports is to be common practice.



# The challenge

Ports have challenges in enabling the facilitation of new marine fuels.

Clear guidance on what is needed to plan for and to evidence readiness for alternative fuels at each stage is provided.



# CMF Support

- 1 Practical assessment, operational and guidance tools for new clean marine fuels
- 2 An open, data-sharing information platform
- 3 Cooperation with other initiatives in the maritime industry

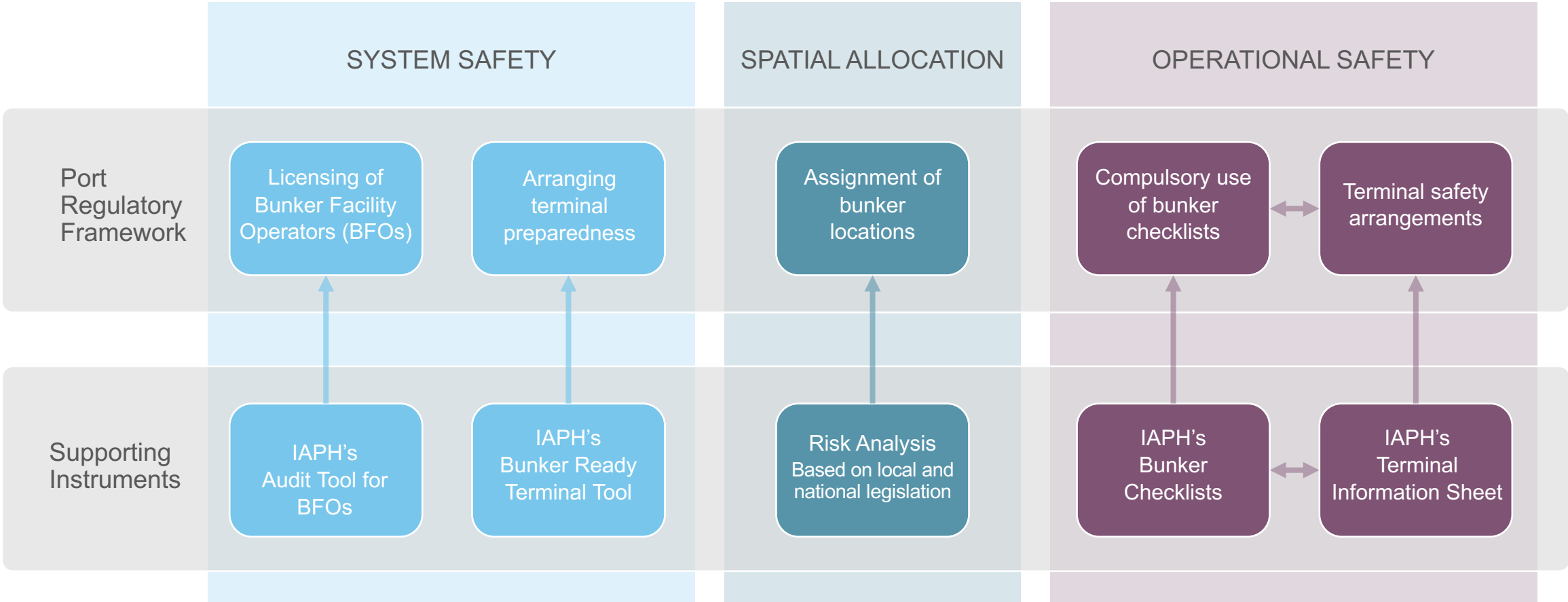


# CMF Port Safety Management Framework

- 1 Harmonize system and operational safety for the ship - bunker facility interface
- 2 Allocate safe bunker locations
- 3 Prepare terminals



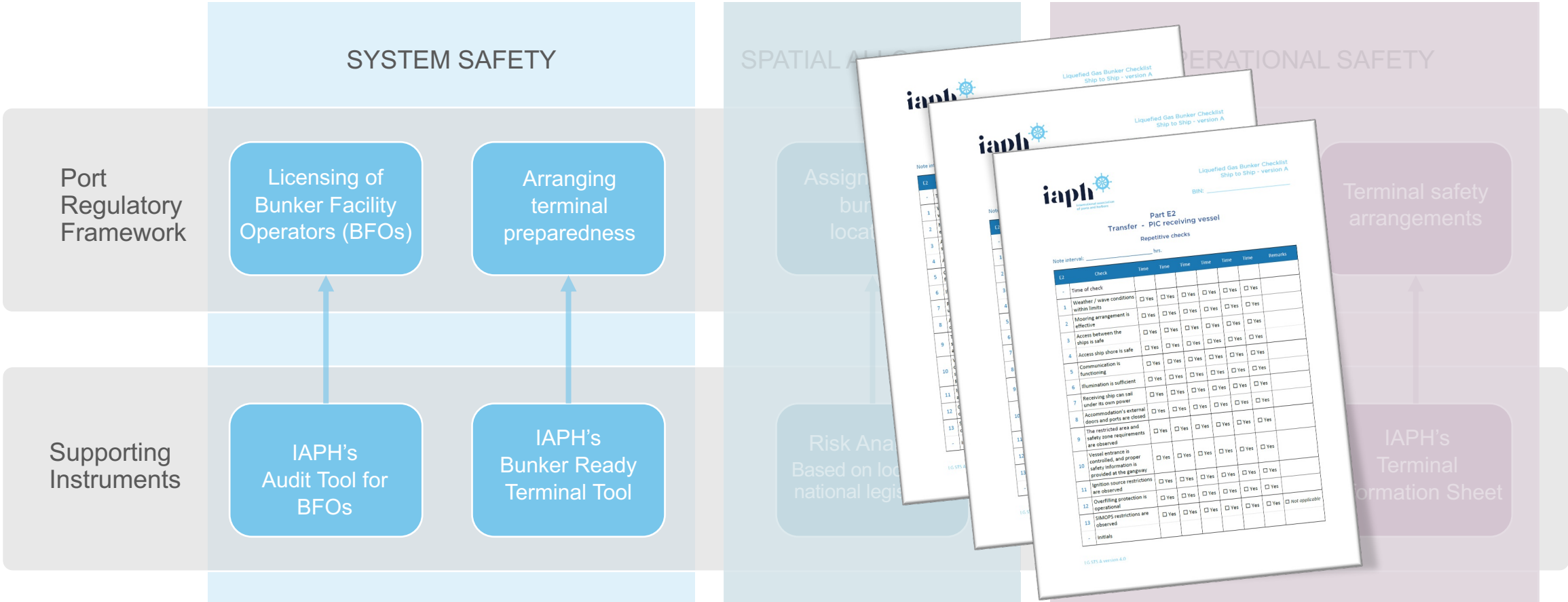
# CMF PSM Framework



Port Safety Management on bunker operations for low flash point marine energy carriers

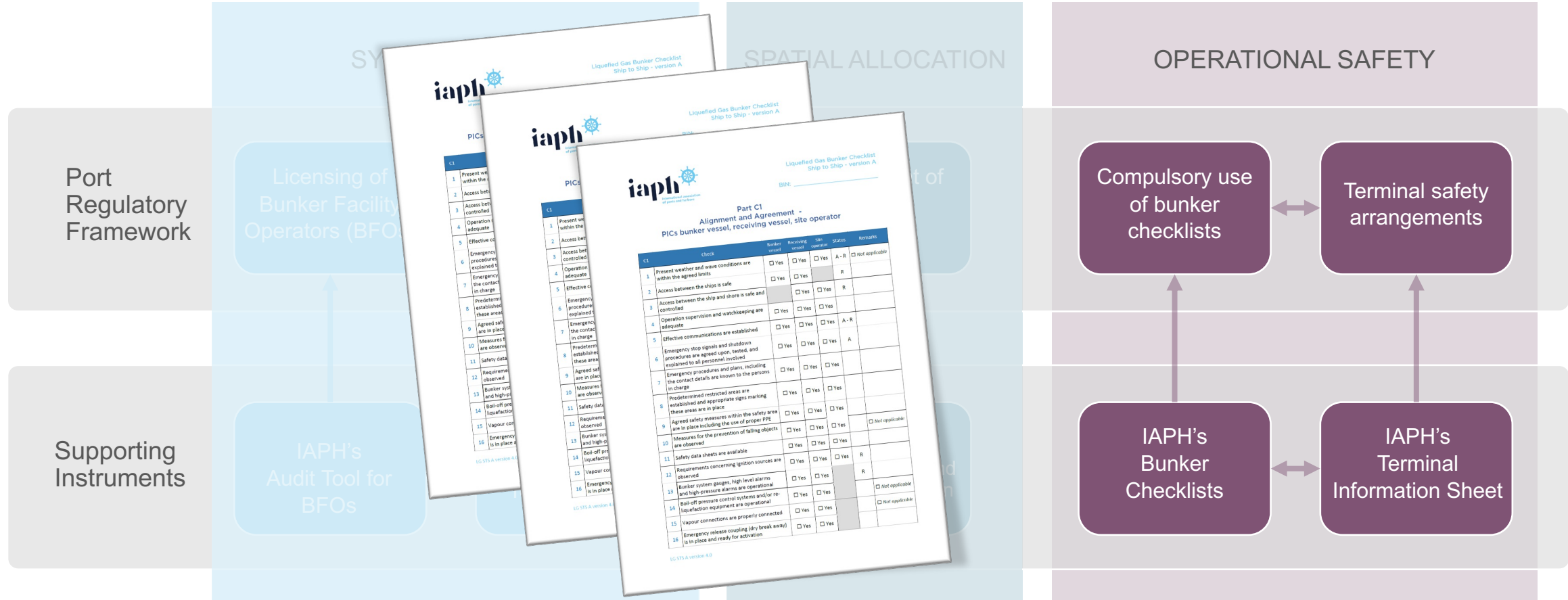


# CMF PSM Framework



Port Safety Management on bunker operations for low flash point marine energy carriers

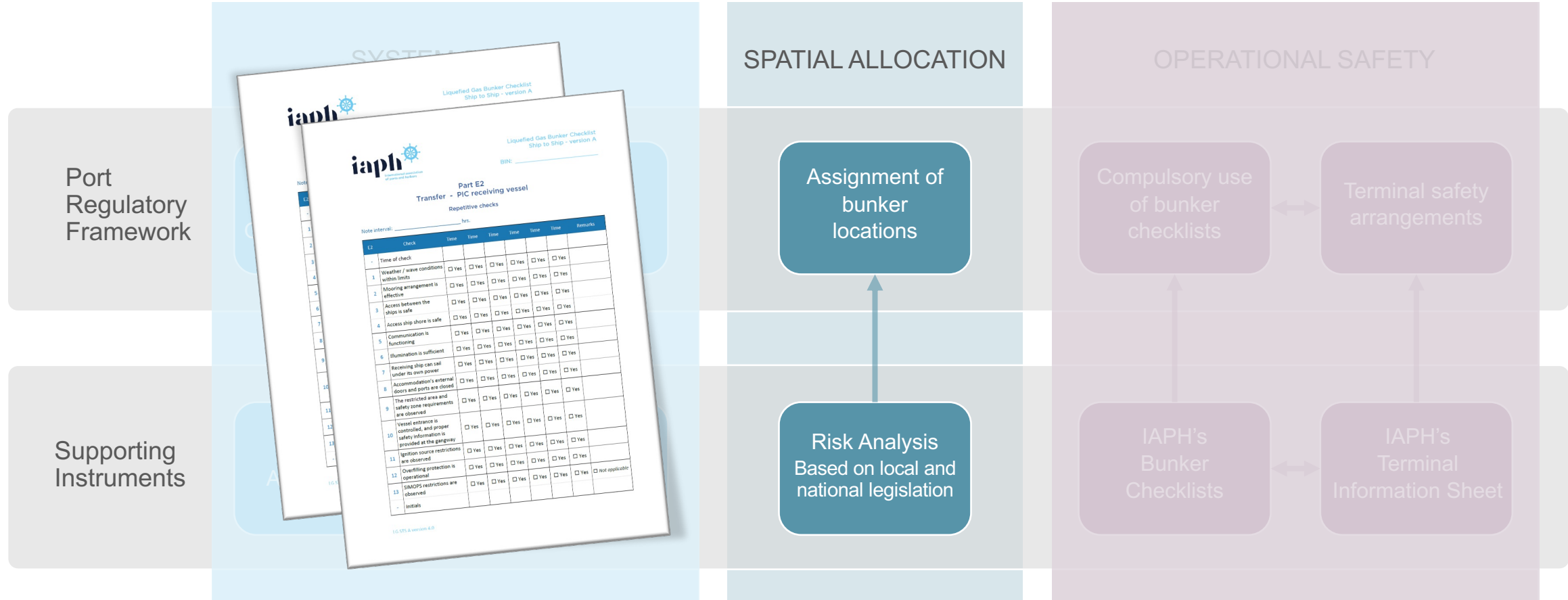
# CMF PSM Framework



Port Safety Management on bunker operations for low flash point marine energy carriers



# CMF PSM Framework



Port Safety Management on bunker operations for low flash point marine energy carriers

# Available tools

## System Safety

INSTRUMENT	ENERGY CARRIER	STATUS
LNG BFO Audit Tool	LNG	Completed
LNG Ready Terminal Tool	LNG	Completed



# Available tools

## Operational Safety



INSTRUMENT	ENERGY CARRIER	STATUS
LG series checklist Ship to Ship - 2 bunkering scenarios	Liquefied gasses (LNG, LH2)	Completed
LG series checklist Truck to Ship - 4 bunkering scenarios	Liquefied gasses (LNG, LH2)	Completed
LG series checklist Truck to Ship Terminal Information Sheet	Liquefied gasses (LNG, LH2)	Completed
LG series checklist Ship to Ship Terminal Information Sheet	Liquefied gasses (LNG, LH2)	Completed
AB series checklist Ship to Ship - 3 bunkering scenarios	Alcohol-based fuels (MeOH)	Completed
AB series checklist Truck to Ship - 4 bunkering scenarios	Alcohol-based fuels (MeOH)	Completed
AB series checklist Truck to Ship Terminal Information Sheet	Alcohol-based fuels (MeOH)	Completed
AB series checklist Ship to Ship Terminal Information Sheet	Alcohol-based fuels (MeOH)	Completed

# In progress and planned

## System Safety



INSTRUMENT	ENERGY CARRIER	STATUS
Conversion of the LNG BFO Audit tool to a generic Audit Tool for BFO's of any marine fuel using any infrastructure	All	Running V1.42
Conversion of the LNG Ready Terminal Tool to a generic Bunker Ready Terminal tool for existing and new marine fuels	All	Running V1.1

# In progress and planned

## Operational Safety



INSTRUMENT	ENERGY CARRIER	STATUS
Truck to Ship checklists for Compressed Gasses (CG) Based on ISGOTT 6 format	CH2	Started
Ship to Ship checklists for Toxic Gasses (TG) Based on ISGOTT 6 format	Ammonia	Started
Shore to Ship checklists containerized energy carriers (CEC) Based on ISGOTT 6 format	Battery packs, Hydrogen racks	Planned for Q4 2023

# In progress and planned

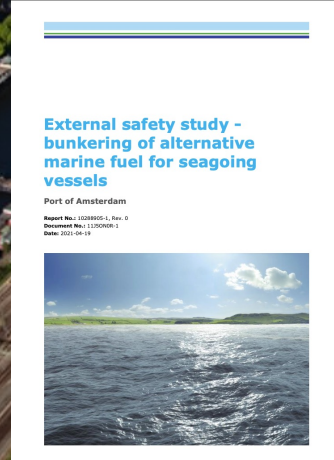
## Port Empowerment

INSTRUMENT	ENERGY CARRIER	STATUS
Port Fuel Readiness Assessment and guidance tool for Fuel Ready Port, in cooperation with WPCAP, GIA, Mission Innovation Zero emission shipping mission (ZESM)	All	Phase 1 completed Phase 2 running
Green Fuel Corridors	All	To be investigated
Knowledge from participating ports	All	Continuous



# Spatial allocation

External Safety: Risks to the surrounding area when handling fuels (the use, storage, and transport of those fuels).



# Port empowerment

To help all port and maritime supply chain stakeholders to understand the evolving alternative fuel capabilities and capacities of ports, WPCAP and CMF are developing the **Port Readiness Level for Alternative Fuels for Ships (PRL-AFS)** tool.



# Port Readiness Levels

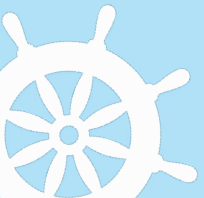
The PRL-AFS is a nine-step indicator tool for the progress of a port in facilitating port calls or bunkering services for ships on alternative fuels.

Research  
Development  
Deployment

9: Vessel call or Bunkering service readily available
8: Vessel call or Bunkering system complete and qualified
7: Vessel call or Bunkering system established on a project basis in an operating environment
6: Vessel call or Bunkering framework demonstrated in a controlled environment
5: Vessel call or Bunkering framework designed
4: Vessel call or Bunkering approach decided
3: Sufficient Information gathered
2: Interest of port stakeholders determined
1: Fuel relevance assessed

# Conclusion

- 1 Facilitating safe and efficient bunker operations for new marine fuels in ports is challenging
- 2 CMF provides tools to face the challenge
- 3 Cooperation within the maritime industry is essential



# References



Peter Alkema



peter.alkema@portofamsterdam.com



<https://sustainableworldports.org/clean-marine-fuels>