

# Safe hydrogen bunkering in the Port of Oslo

Nordic Roadmap hydrogen pilot study

# Safe hydrogen bunkering in the Port of Oslo

**Objective:** To identify the key barriers and port readiness for safe hydrogen bunkering of Samskip container feeder vessels in the Port of Oslo.

**Background:** The Port of Oslo's vision is to become the world's most efficient and environmentally friendly urban port.

- Europe's largest container port, Rotterdam, have fixed weekly routes to Oslo, and aims to become a green hydrogen hub.
- In September 2023, the cities of Oslo and Rotterdam signed a MoU that will help establish emission-free transportation between the continent and Oslo.
- Samskip plans hydrogen-powered container feeder vessels operating on this green shipping corridor.

The Port of Oslo is interested in exploring the safety and regulatory barriers which remain a challenge for bunkering of hydrogen. Mapping of key barriers on a local level will provide a good overview of the current and expected readiness for hydrogen bunkering.



# Pilot partners

- Pilot owner: The Port of Oslo
- Pilot participant:
  - Samskip
  - Green H
  - Norwegian Hydrogen



**samskip**



# Task 1 – Bunkering frequencies and locations

**Objective:** Identify today's bunkering locations for Samskip's container feeder vessels and their bunkering frequencies. This task will also identify the necessary bunkering frequency when using hydrogen as fuel between Rotterdam and Oslo.



Source: <https://www.samskip.com/news/samskip-launches-its-next-generation-zero-emission-short-sea-container-vessels/>



# Task 2 – Investigating key barriers

**Objective:** Investigate the key barriers for hydrogen bunkering of container feeder vessels in the port of Oslo.

	GHG abatement potential	Regularity /frequency of traffic	Hydrogen availability	Volume of cargo	Stakeholders involved	Financial barriers	Maturity	Learning effect for future GSC
<b>Green shipping corridor</b>								
	<u>Safety bunkering operation</u>	Regularity /frequency of traffic	Hydrogen availability	Volume of cargo	Stakeholders involved	Financial barriers	Maturity	Learning effect for future GSC
<b>Port A</b>								

**Scoring scale:**

- Ready as is, or minor/ easy modifications necessary. Learning effect: good.
- Barrier to be aware of, need dedicated actions or strategy to overcome. Learning effect: intermediate.
- Barrier which could be a showstopper for the entire pilot. Learning effect: poor.

Intra-nordic green shipping corridor candidates – Future Fuels Nordic

# Task 3 – Port readiness level for hydrogen bunkering

**Objective:** Assess the port readiness level for bunkering of hydrogen for the Port of Oslo and for Port of Rotterdam (already carried out).

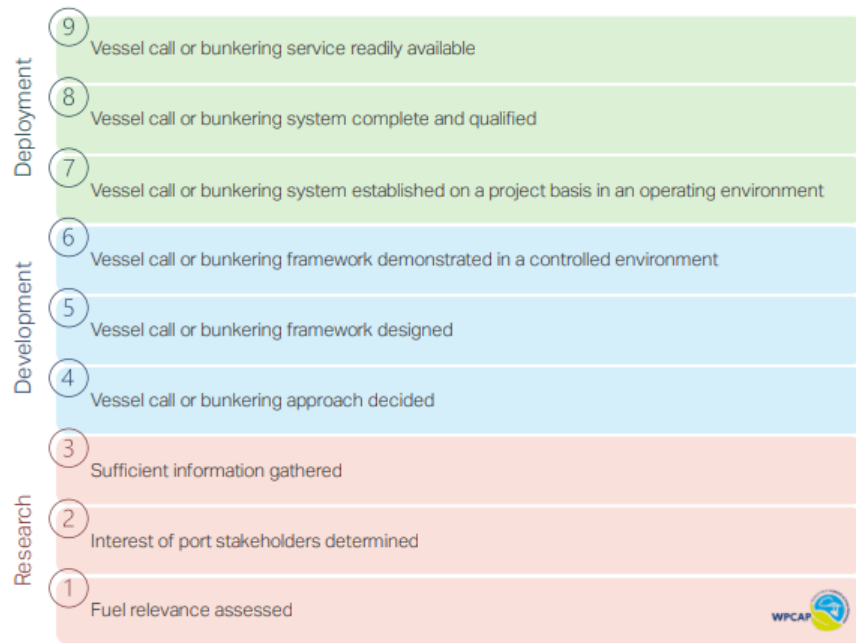


Figure 8 Port readiness levels.

Source: World Ports Climate Action Program (WPCAP).

Source: Northern European & Baltic Green Corridor Prefeasibility Study



Port readiness levels - 2022

	LNG	Bio-methane	E-Methane	Methanol	Bio-Methanol	Ammonia	Hydrogen - pressure	Hydrogen - liquid
Port of Rotterdam	9	6	4	7	5	4	4	3

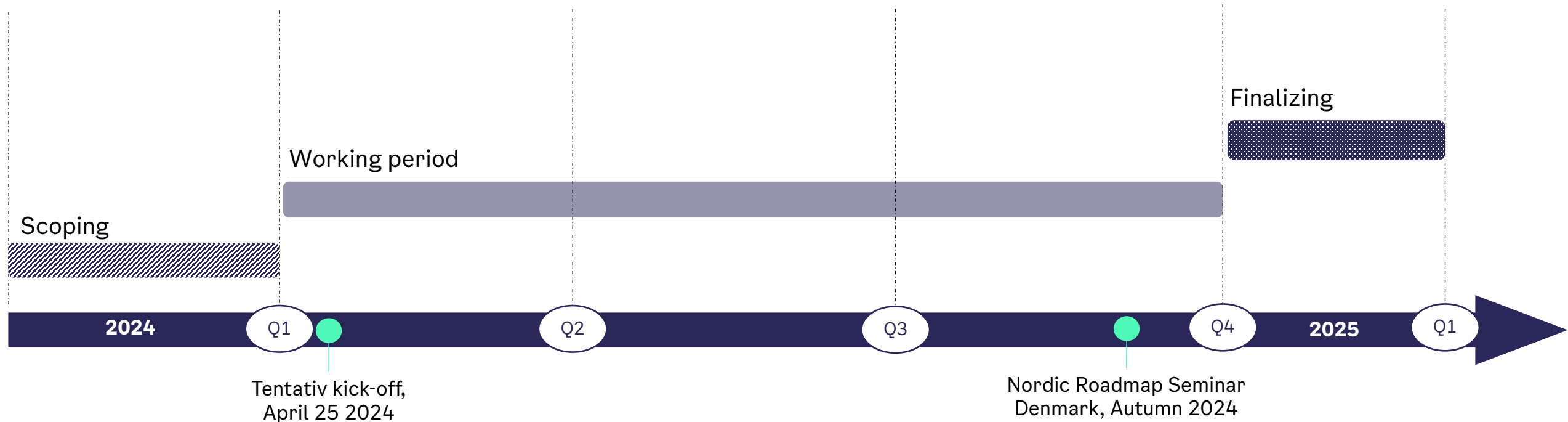
Port readiness level - 2030

	LNG	Bio-methane	E-Methane	Methanol	Bio-Methanol	Ammonia	Hydrogen - pressure	Hydrogen - liquid
Port of Rotterdam	9	9	9	9	9	9	9	9

Example from the Port of Rotterdam



# Timeline for pilot study



● Milestones

# Thank you

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