

5L. Vessel decarbonization pathway

Summary of chapter findings and outcomes

- 01
 - **Current and future vessel availability and timeline** taking into consideration the availability of alternative fuels based on technology maturity
 - **Modifications required for existing vessels and characteristics of new vessels** (i.e., alternative fuels, onboard storage, technologies)

- 02
 - **Technical feasibility** of vessel newbuild/conversion to use alternative fuels, including:
 - Impact of usage of alternative fuels on vessel, voyage range, and cargo payload
 - Fuel and technology availability and maturity over time
 - Vessel renewal/new ordering timelines

- 03
 - **Regulatory feasibility** of vessel conversion to use alternative fuels:
 - Regulations regarding use and onboard storage of alternative fuels
 - Measures to ensure a just and equitable conversion and operation of the vessels, including relevant ESG ambitions

- 04
 - **Cost assessment** of vessel conversion to use alternative fuels, including:
 - CapEx and OpEx for existing and new vessels' incremental cost of green
 - Resulting financing needs and funding sources

- 05
 - **Just & Equitable:**
 - Analysis from a J&E perspective will provide insights on how workers, communities and ecosystems might be affected by the change/addition of new operating vessels and their related new technologies. There might be socio-economic opportunities and risks. It is important that work is done to maximize the opportunities and minimize the risks.



Workstream gap analysis – Vessel decarbonization pathway

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S		
1						Project Vision										Header Definitions				
2																<div>Elements [see workstream-specific spreadsheets for a list of elements]</div>				
3																<div>Description [describe element]</div>				
4						Workstream Scope / Targets										<div>Main Gaps [describe gap]</div>				
5																<div>Solution [describe solution to close gap, i.e. demonstrators, SOPs, studies, etc.]</div>				
6																<div>Time [timeframe to close gap]</div>				
7																<div>Cost to close gap [demonstrators, pilots, etc.] [\$M]</div>				
8																<div>Investments [Capex/Opex to reach project scope]</div>				
9	Workstream	Topic	Feasibility Assessment	Elements	Description	Main Gaps	Solution/ Mitigating Actions	Timing	Cost to Close Gap	Investments	Dependencies/ Commitments	Gap Factor	Criticalit y							
10			Technical Specify main gaps to target state (scope) and mitigating actions. What are the key technical challenges and mitigating actions? How are they expected to evolve over time? How does this align with the target state time line?																	
11																				
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15			Regulatory Specify main gaps to target state (scope) and mitigating actions. What are the key regulatory challenges and mitigating actions? How are they expected to evolve over time?																	
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Dependencies [describe pre-requisites and timing/sequence for solution]

Gap factor [rate the gap based on the means required to close gap] [traffic light]

Criticality [to ensure operation] [traffic light]

Traffic Light Table Definition

Color	Gap Factor/Severity (How large is the gap?)	Criticality/Impact (How high is the impact of this gap?)
Low	Low	Low
Medium	Medium	Medium
High	High	High

Feasibility Definitions (Gaps related to ...)

Technical

The technical readiness (development, adaptation, availability)
Operational readiness over time

Regulatory

The regulation regarding the use, handling and onboard storage of the alternative
i.e., safety and operational risk guidelines, methodologies and procedures for using

Throughout the Feasibility assessment, fill the table with insights on **technical and regulatory feasibility**⁵ – specifically, use this table to highlight **gaps** and ways to close them

Legend and definitions



5. Cost assessment is covered under the residual cost gap analysis methodology