

# Green Corridors Pre-Feasibility Phase Blueprint

January 2023



The **Green Hydrogen Catapult** is a global initiative focused on green hydrogen. The catapult was launched in 2020 by the United Nations and supported by Rocky Mountain Institute (RMI)



The Green Hydrogen Catapult consist of ten members who jointly aim to activate the use of green hydrogen as a Transforming Energy Across the World's Most Carbon-Intensive Industries by

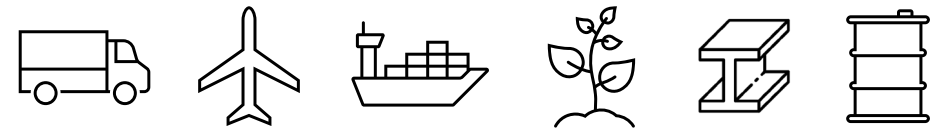
- Bringing the cost of green hydrogen below US\$2/kg by 2026

This Green Corridor Pre-Feasibility Blueprint is carried out in 2022 under the Green Hydrogen Catapult, by the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping and Rocky Mountain Institute.

- Scaling up green hydrogen production capacity by 50 times
- Deploying 80 GW of new renewables-powered electrolyzers, of which Catapult members have already committed 45 GW



RMI is tackling the climate crisis by focusing on its main contributor: energy production and use, which represents 70% of global greenhouse gas emissions.



Members of the catapult



FORTESCUE FUTURE INDUSTRIES



H2green steel



Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping



ReNew POWER

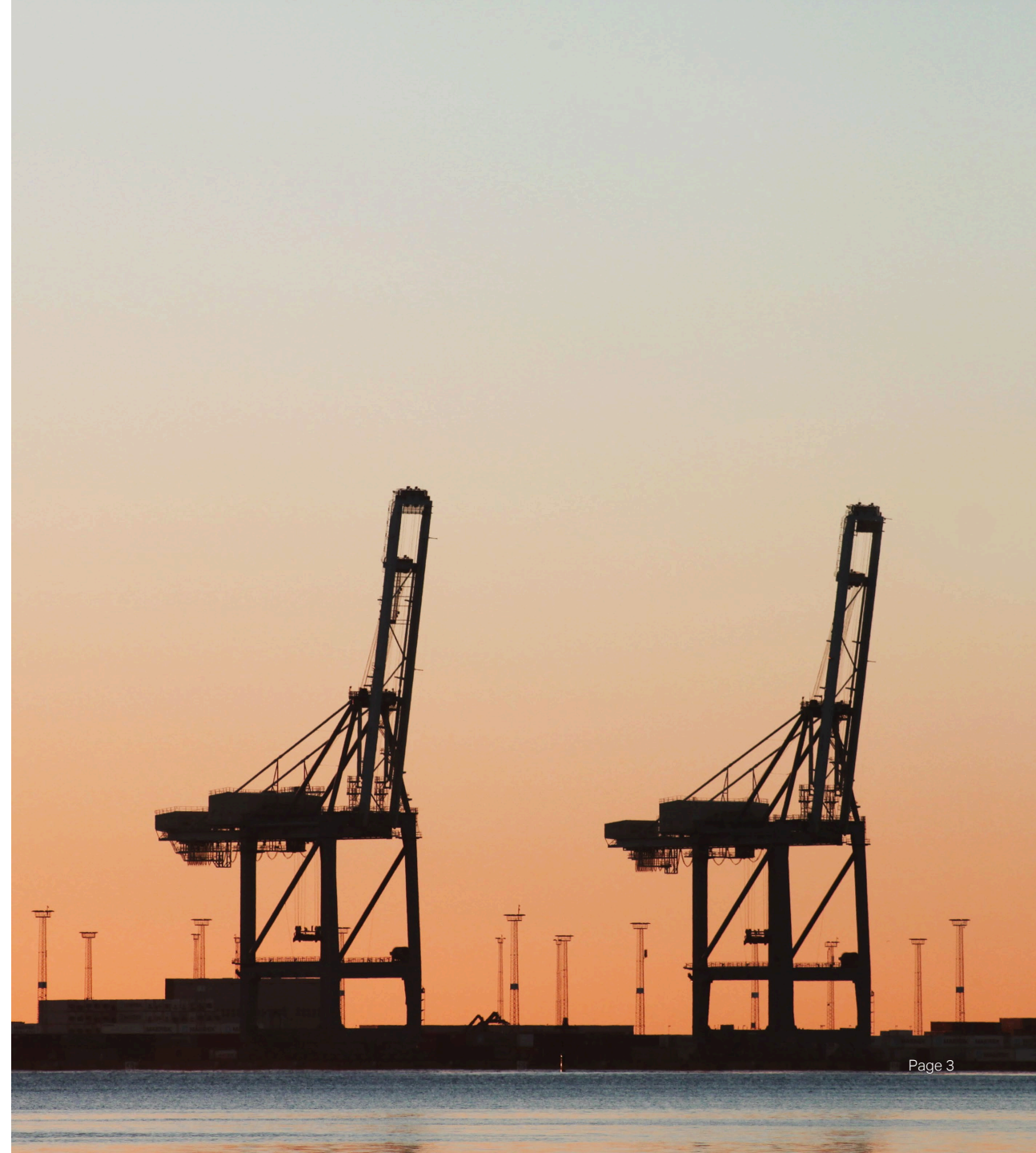


# Content

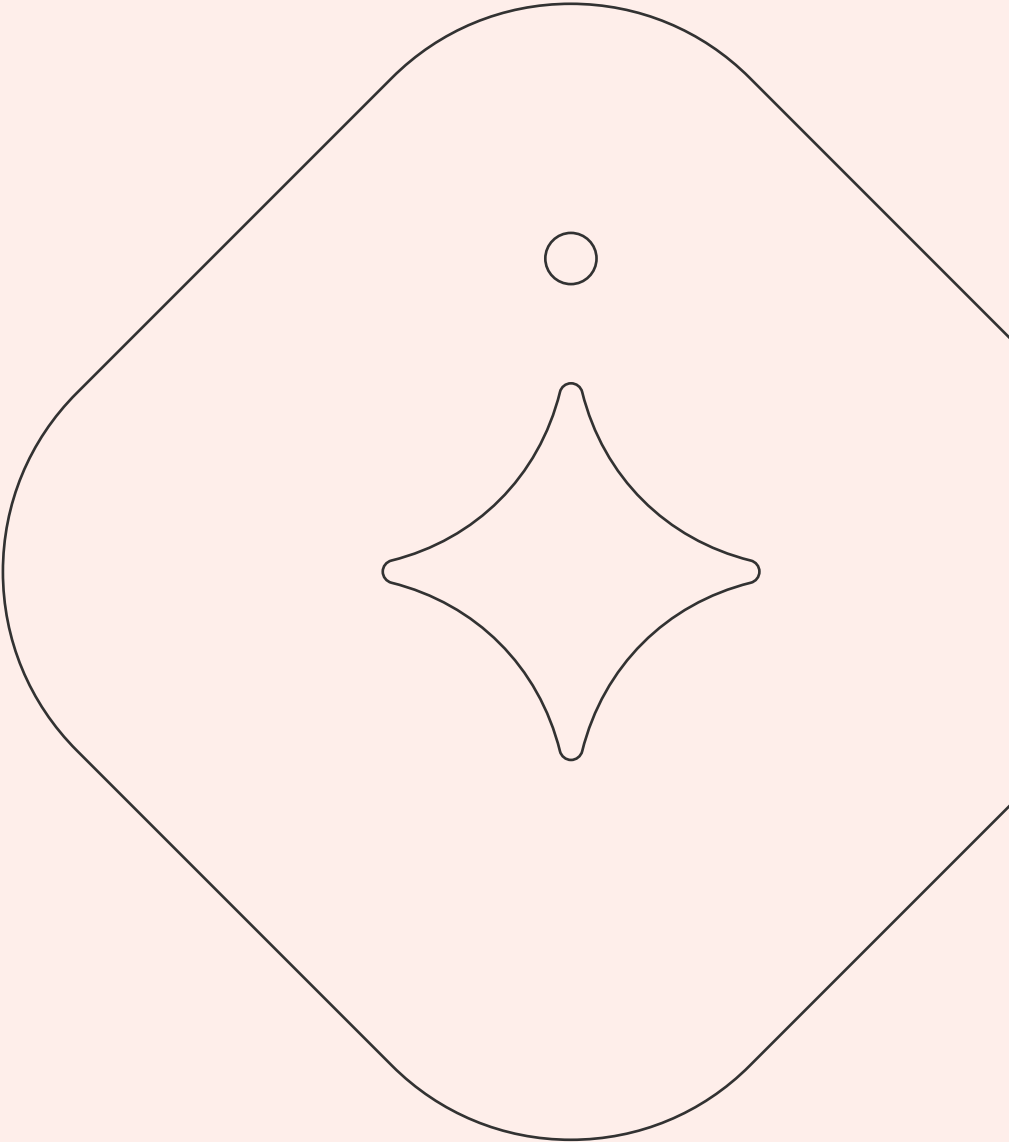
01 Introduction

02 How-to guide

03 The Framework



# 01 Introduction



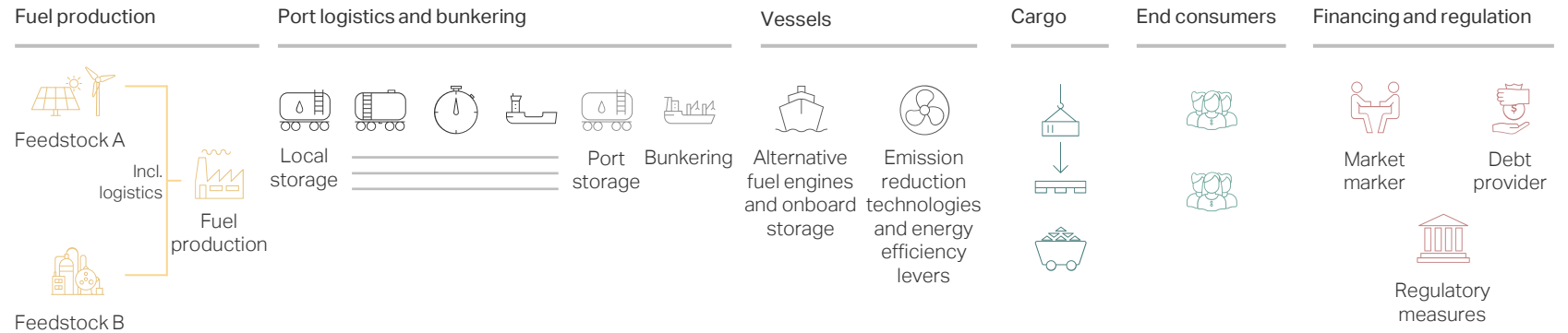
# 01 Introduction

The Clydebank Declaration was launched at COP26 to facilitate rapid decarbonization of the shipping industry. Its signatories support establishing "green shipping corridors – zero-emission maritime routes between two (or more) ports" with an intent to establish at least six corridors by 2025 and "many more" by 2030.

Once operational, green corridors will:

- Contribute to the development of alternative fuel supply chains, offtake, and lead to reduced cost.
- Address current cost-gaps and propose / develop measures to overcome these gaps
- Unite individual first mover actions across the value chain and accelerate decarbonization processes in a specific geographical area

Green corridors bring together first movers to share risk.

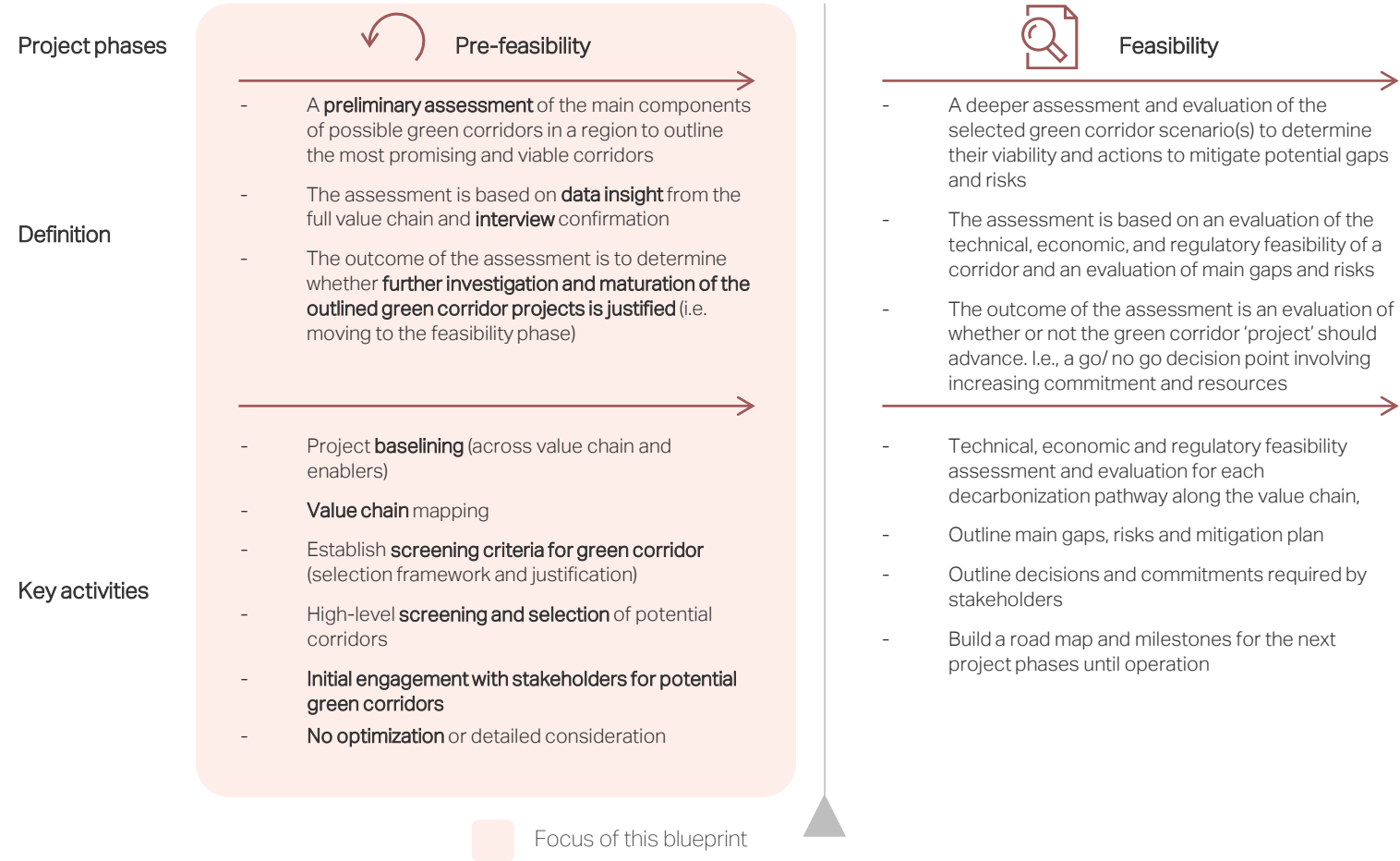


Green corridors can involve the entire maritime supply chain.



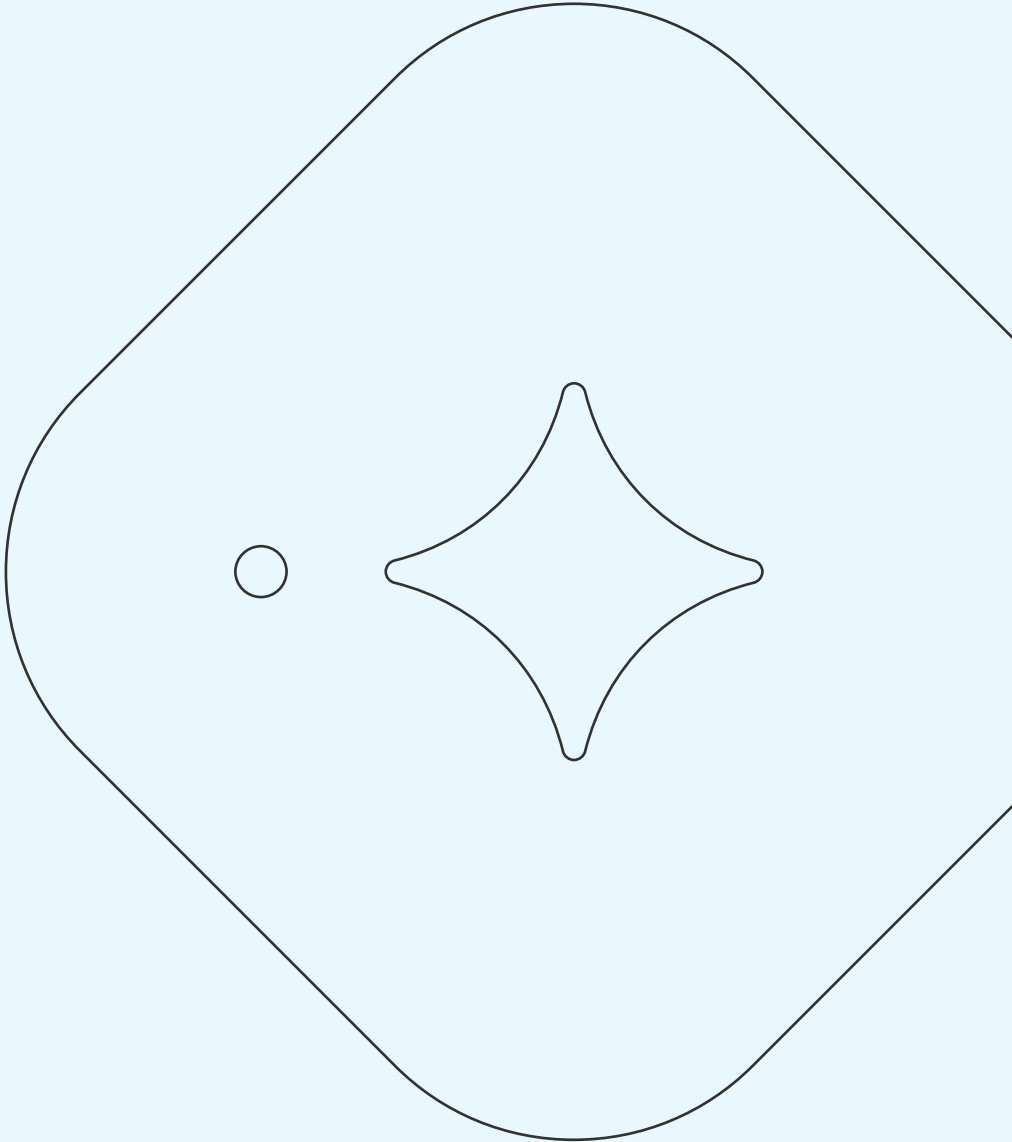
The collaborative nature of green corridors creates a space for pre-competitive testing and commercial trials of technologies and market solutions. The experience of planning, implementing, and operating green corridors is also valuable for informing and accelerating the development of effective regulation and in general remove some of the uncertainties and risks faced by first movers. Furthermore, the 'ring-fenced' partnership approach (e.g., consortium) between public and private players promotes collaboration across the supply chain and sharing of costs and benefits.

To reap the benefits and meet the high ambition level of the Clydebank Declaration, it is paramount that green corridor maturation is done by as many companies / organizations as possible. To accelerate the generation of green corridors, the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping and selected partners have developed blueprints for both the pre-feasibility and the feasibility phase. These blueprints serve as ready-to-use guides for any stakeholder involved or wanting to get involved in green shipping corridors.



Key definition and activities for the early phases of Green Corridor Maturation

# 02 How-to guide



# 02 How-to guide

The Green Corridor Pre-Feasibility Blueprint provides guidance to stakeholders who are interested in understanding the green corridor options in a pre-defined area: port, region, country or sub-continent. The methodology is derived from the Center's experience in similar projects and aims at supporting first mover with hands-on guidelines for the initial, required desktop analysis.

The blueprint is divided into three sections covering a total of seven steps in the pre-feasibility process:

1. Introduction
2. Data, interviews, and results
3. Interpretation and discussion

The blueprint provides a data-driven approach where an area is screened based on specific selection criteria. The result is a suite of green corridor options to be further assess in the feasibility phase.

The seven sequential steps cover a holistic value-chain assessment of opportunities for green corridors and deliver tangible outputs:

## Step 1: Introduction, vision and project setup

Identification of project vision and possible green corridors in the defined area of interest including region specific drivers and constraints.

## Step 2: Alternative fuels: Timing, capacity, emission, and cost

Mapping of fuel supply possibilities within the area including considerations around cost, current and future production capacity and expected competition. Fuel LCA - estimation of the well-to-wake reduction potential for each alternative fuel considered.

## Step 3: Port, storage, and bunkering infrastructure

Identification of ports in the defined area and description of crucial, port specific restrictions. Mapping of port readiness level assessment (bunkering and call) for relevant ports.

## Step 4: Trade routes, vessels, cargo, and services

Mapping of emissions and fuel consumption in the area by vessel segments. Analysis of import and export by cargo type, services, volume, value, (vessel / operator specific) trade routes and vessel segments for defined region. Mapping and quantification of the additional cost of green services and transport

## Step 5: Policy, regulation, and funding

Assessment of the regulatory landscape in the area to identify possible discriminating factors.

When the first round of data gathering is completed, it is crucial to verify it by interviewing stakeholders across the value chain and regulators in the areas of interest (chapters 1-5). Following the interview round, the data tables are updated and finalized.





## Step 6: Selecting potential green corridors

Mapping and ranking Green Corridor selection criteria (might be related to vision and objectives) and list possible green corridors.

While CO<sub>2</sub> emission abatement is the ultimate goal, the fastest way to achieve it, is not necessarily to address the largest emitters. In some areas, the availability of specific fuel might make a certain vessel segment the most relevant while in others it can be secondary attributes, like availability of local workforce, infrastructural development opportunities or the opportunity to increase technical insights. Certain regulation or funding options might also influence the decision, allowing certain corridors or segments of fuels to be given a head-start. This blueprint process includes gathering a lot of data, allowing multiple criteria to inform the decision of which green corridors to pursue.

When the process has been repeated to the extent needed, and the number of corridors is decided, the fuel consumption (MFO / LSFO vs. alternative fuel) and subsequently the CO<sub>2</sub> emission of each corridor needs to be calculated.

The data gathered as part of the pre-feasibility process is meant to guide the following actual assessment of the feasibility of a green corridor.

The data set doesn't necessarily need to be complete to provide foundation for the decision to proceed to feasibility assessment. If suggested data tables are not generated it simply means that certain criteria cannot be activated. And opposite - if more data can be gathered, it will generate additional selection criteria.

## Step 7: Next Steps

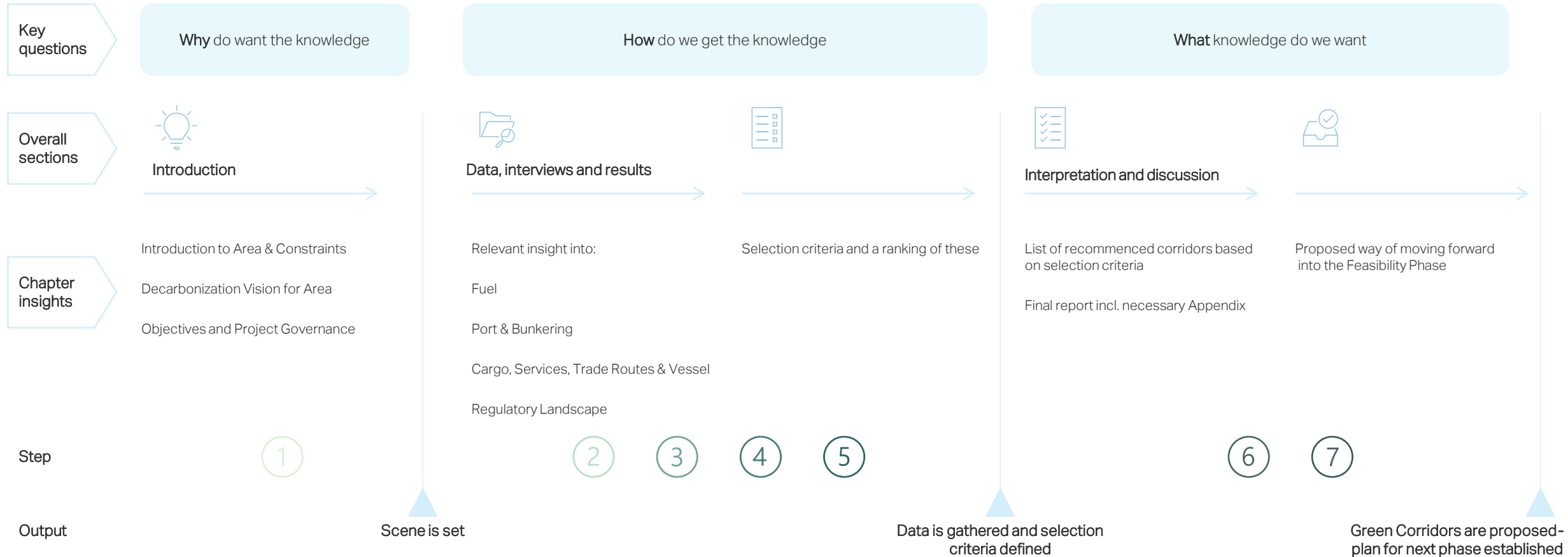
The process ends with the planning of Consortia Incubation Workshop, alignment on project governance, funding, and resourcing requirements to complete the feasibility phase and develop a communications and engagement plan.

Each chapter carefully guides the reader through the process with easy-to-use tables in the complementary Excel toolbox that helps ensure that all necessary data is gathered. The purpose of each data table is explained and leads to the final suite of corridors. In addition, the toolbox contains tables that are pre-populated with examples from already completed Green Corridor Pre-Feasibility

Assessments including the specific source for the data. This will allow the user to get inspiration to both, data formatting as well as guiding to relevant sources for the required type of data.

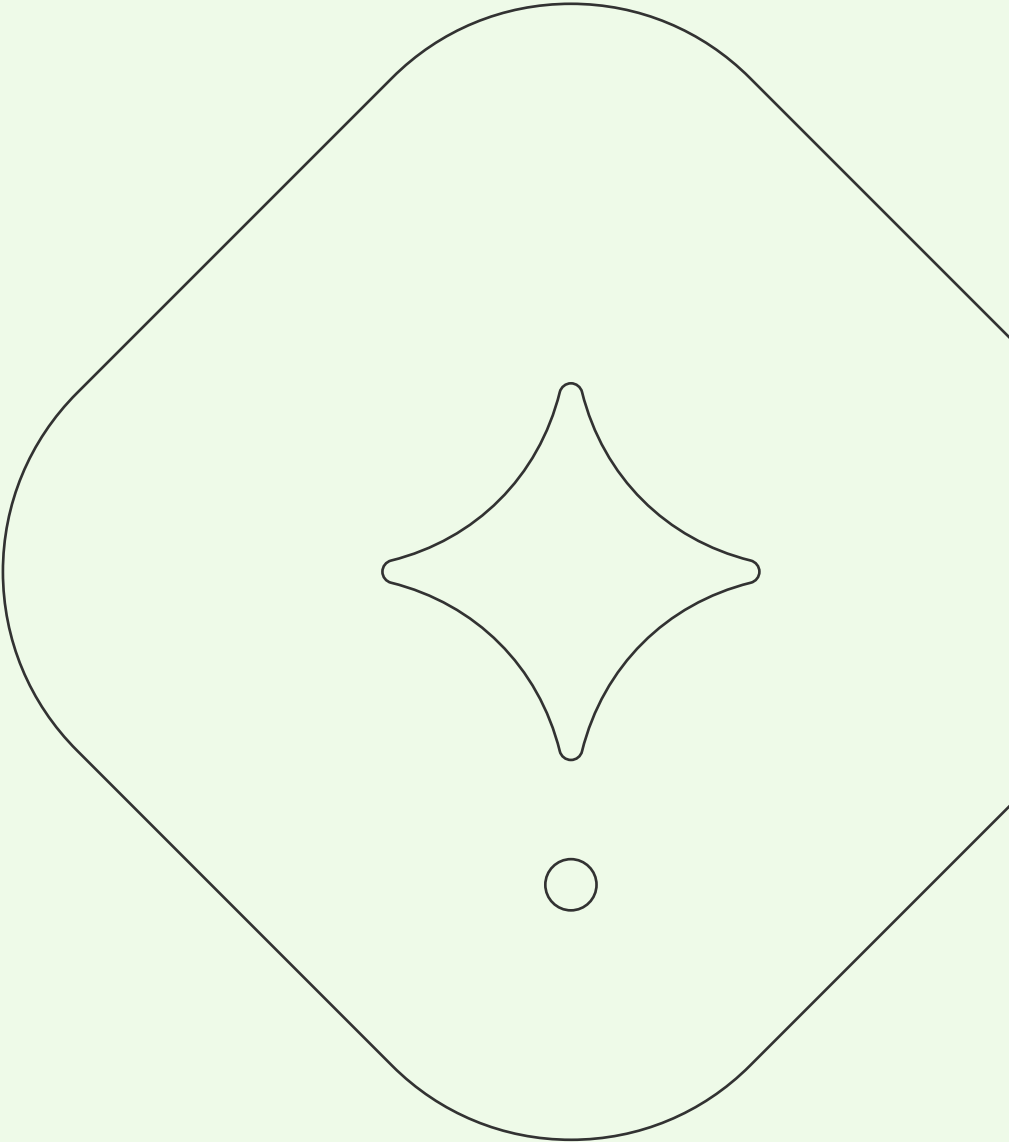
The Pre-Feasibility Blueprint strive to bring the concept of green corridors from a political ambition level to a more practical working level, in recognition of the importance of the Green Corridors as a key igniter of the decarbonization of shipping.

# Flow and overview of the proposed methodology



Conceptual drawing of the Pre-feasibility Maturation Process

# 03 The Framework



# Content

- Step 1 Introduction, vision and project setup
- Step 2 Alternative fuels: Timing, capacity, emission and cost
- Step 3 Port, storage, and bunkering infrastructure
- Step 4 Trade routes, vessel, cargo and services
- Step 5 Policy, regulatory and funding
- Step 6 Potential green corridor selection frameworks
- Step 7 Next steps



# Step 1: Introduction, vision, and project setup

## Key questions

What **possible green corridors** exist in the defined area?  
Which **key results** and focus areas for the corridors are important in the upcoming phases?

- I. What is the **region-specific baseline** and are there any **particularities**?
- II. **Why** do we want to have green corridors in the defined area of interest?
- III. **How** do possible green corridors support the **area's overall social, ecological or economical goals** and **ambitions** described in in the **vision**?
- IV. How is the **pre-feasibility project governed**? **When** and **how** do we take **which** action? **Who** is involved?

## Chapter analyses

Executive Summary

- A **Area specific overview and constraints**
- B **Vision** of possible green corridors in the defined area (basis for selection criteria)  
  
Specified **objectives** of possible green corridors in the defined area (basis for selection criteria)
- C Project specific information – **timeline, governance (project plan), involved stakeholders, agreements, methodology**



## Proposed work

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- ◆ Write introduction to defined area of interest, and highlight essential characteristics, as well as possible constraints. Be specific and make sure to define the borders of your defined area of interest carefully to ease the data collection in following chapters.
- ◆ State the overall decarbonization vision for the area and highlight how green corridors can contribute in realizing this vision.
- ◆ Link the implementation of green corridors to specific, overall social, ecological or economical objectives of the region e.g. UN Global Compact, sustainability goals, climate action.
- ◆ Focus on identifying relevant discriminating factors which favour one green corridor in comparison to another.
- ◆ Create a short description of the proposed execution of the project, including governance, agreements, timeline and project partners.
- ◆ Always confirm data base insights by interviewing relevant stakeholders and updating data sheets accordingly → step 2-5.



# Step 2: Alternative fuels

## Timing, capacity, emission, and cost

### Key questions

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- I. What is the **range of expected production capacity of alternative fuels relevant** to the corridor, based on announced projects, feedstock availability, regulation, and timeline?
  - III. What are the main **drivers impacting the cost of alternative fuels** and price for shipowners, and how will they evolve over time?
  - II. What are the **fuel emissions** depending on the alternative fuel type and its origin?
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- IV. What is the **range of expected import of alternative fuels relevant** to the corridor, based on announced projects, feedstock availability, regulation, timeline etc.?
  - III. What are the main **drivers impacting the cost of alternative fuels** and price for shipowners, and how will they evolve over time?



### Chapter analyses

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#### A Within the area of interest

- Fuel choice and supply** – supply possibilities within the region in a given **timeframe**. Current and future **production capacity** with expected competition for fuels considered
- Fuel cost** – show the expected costs and explain the main drivers behind
- Fuel emission** – estimate the well-to-wake reduction potential for each alternative fuel considered

#### B Outside the area of interest

- Fuel choice and supply** – supply possibilities imported to the area within a given **timeframe**. Current and future **production capacity** with expected competition for fuels considered
- Fuel cost** – show the expected costs and explain the main drivers behind
- Fuel emission** – estimate the well-to-wake reduction potential for each alternative fuel considered

## Proposed work

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**Fuel choice:** List of relevant alternative fuels to be assessed in the defined area (Tab. 2.1)

**Fuel supply:** Access database to find relevant fuel projects announced, and generate overview of the availability of fuels over time, intra- (Tab. 2.2 / Tab. 2.3) and extra-regional (Tab. 2.6 / Tab. 2.7). Estimate the expected amount of fuel available for shipping.

**Fuel cost:** Get view on fuel cost – either through publicly available data or through interviews with stakeholders. Insert data from the area (Tab. 2.4) and from outside the area (Tab. 2.8), e.g. electricity price, fuel production cost (CAPEX, OPEX)

**Fuel emission:** Understand well-to-wake emissions of different fuels assessed; depending on their production location (Tab. 2.5 / Tab 2.9)

## Why collect this data

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**Fuel choice** (Tab. 2.1): Align on which fuel you want to focus on. This is critical as the following data collection depends on this choice.

**Fuel supply** (Tab. 2.2 / Tab. 2.3 and Tab. 2.6 / Tab. 2.7): Availability of alternative fuels over time will discriminate green corridors in your later selection. If an alternative fuel is not available within the region it might be possible to import it.

**Fuel cost** (Tab. 2.4 / Tab. 2.8): Needed input to inform investment decisions throughout the value chain – both regarding fuel from within the area of interest and imported fuel.

**Fuel emission** (Tab. 2.5 / Tab. 2.9) : Fuel emissions data is needed to identify the possible green corridors with highest potential on emissions reduction.





## Additional recommendations

- I. Communicate with stakeholders, including ports and shipping companies, to **identify alternative fuel demand**.
- II. Consider providing **fuel discounts as incentives** for using green fuels by first movers.
- III. Clearly **communicate production outlook** and delivery of alternative fuels.

## Illustrative examples



# Step 3: Port, storage, and bunkering infrastructure

## Key questions

- I. Which **potential ports** can support the green corridor? What type of cargo are they handling and are there any **port specific restrictions**?
- II. What is the **current storage and bunkering infrastructure** in the area?
- III. What is the current **port readiness level** and what is the **expected outlook**?



## Chapter analyses

- A Identify **ports** in the defined area, analyze the **trade** and describe crucial, **port specific restrictions** - some examples might be:
  - ownership and operation
  - location,
  - water depth,
  - congestion degree,
  - current and predicted handling (limited number of ships per day, limited storage capacity etc.),
  - port infrastructure (limited number of cranes, limited handling of cargo, transport type from port to destination etc.),
  - ecological or social regulations (limited port growth etc.)
- B Identify **current** potential import, storage and bunkering of relevant chemicals at ports in the defined area
- C Do a '**port readiness level** assessment' for relevant ports, to compare different ports in the area independently; including bunkering and port calls of traditional and alternative fuels

## Proposed work

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**Identify ports:** Make list of all relevant ports

**Port specific restrictions:** Populate data sheet with relevant objective data: water depth, degree of congestions etc. (Tab. 3.1). The list of examples is for reference only, so please add any characteristic relevant for ports in your defined area.

**Port specific trade:** Map cargo segments and trade patterns of your selected ports separated by import and export (Tab. 3.2 / Tab. 3.3)

**Current infrastructure:** Map the current ability to handle ammonia, methanol and other relevant chemicals in your area of interest (Tab. 3.4). Assess the infrastructure in place and estimate the technical development stage to make ports comparable.

**Future infrastructure:** For each port to be considered, make Port Readiness Level Assessment for both bunkering and port call to assess the current and future ability to handle alt. fuels (Tab. 3.5 / Tab. 3.6)

## Why collect this data

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**Identify ports:** Get a baseline overview, and deselect non-relevant ports upfront.

**Port specific restrictions** (Tab. 3.1): Identify discriminating factors that will influence your choice of ports and the actual feasibility of green corridors e.g. water depth limits the number of vessel segments entering the port.

**Port specific trade** (Tab. 3.2 / Tab. 3.3): Get an understanding of trade and cargo type e.g. if you want to select your green corridor based on the top ports regarding volume / value trade.

**Current infrastructure** (Tab. 3.4): Handling relevant chemicals today can give an indication of readiness levels related to specific alternative fuels and indicate if a port should be favoured against another.

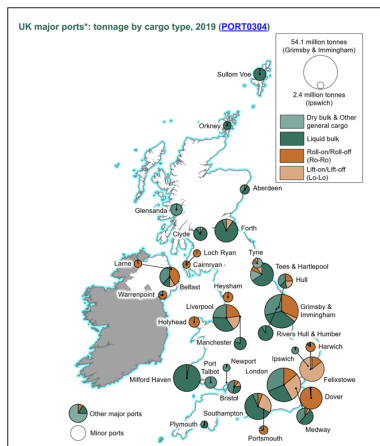
**Future infrastructure** (Tab. 3.5 / Tab. 3.6): The Port Readiness Level Assessment for bunkering and port call indicates a potential timeframe for establishing a green corridor with specific alternative fuel.



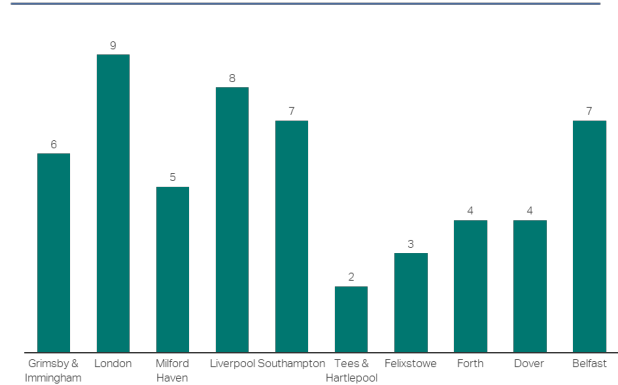
## Additional recommendations

- I. Use port readiness assessment to enable green projects and corridors.
- II. Act as a catalyst between fuel producers, shipping companies, and cargo owners to realize green corridors.
- III. Share knowledge with other ports to solve challenges, identify opportunities, and develop common safety procedures.
- IV. Consider providing discounts as incentives for using green fuels by first movers.
- V. Recognize that readiness for new fuels early can be turned into a competitive advantage that could provide growth opportunities.

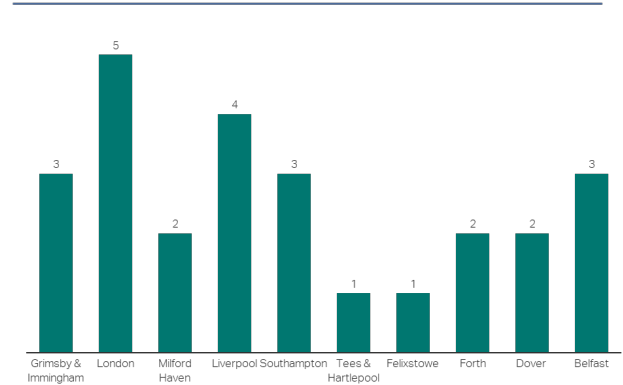
## Illustrative examples



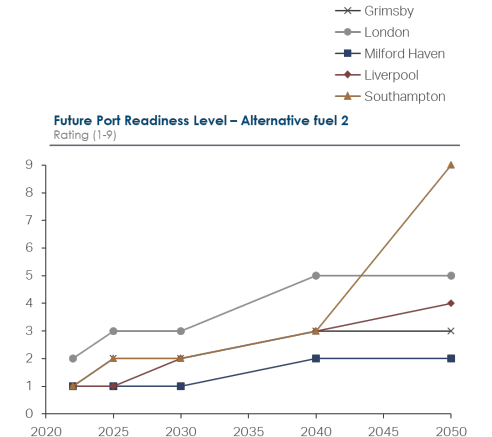
Current Port Infrastructure development phase – Alternative fuel 1  
Rating (1-10)



Current Port Infrastructure development phase – Alternative fuel 2  
Rating (1-10)



Future Port Readiness Level – Alternative fuel 2  
Rating (1-9)



# Step 4: Trade routes, vessel, cargo, and services

## Key questions

- I. Which **vessel segment** is responsible for which **emissions** and **fuel consumption** within the area? Which vessels **appear on regular basis** in the area?
- II. What are the **main cargo types** and **services** in the area (volume and value)? What are the **main trade routes** in the defined area (where from / where to)? Which vessels are **mainly used**?
- III. What are the **additional costs for green transport** and which products should be preferred to be handled in a green corridor?

## Chapter analyses

- A Analyze **emissions** and **fuel consumption** in the region by segment in a reasonable timeframe – incl. **emission factor<sup>1</sup> of ships**
- B Analyze **import and export by cargo type, services, volume, value, (vessel / operator specific) trade routes and vessel segments** for defined region
- C Quantify the **additional cost of green services and transport** – results incl. **incremental cost of green (in %)** and **willingness to pay** by customer



<sup>1</sup> Vessel emissions divided by number of ships in region → to identify the vessel segment with the highest impact on emissions reduction.

## Proposed work

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**Vessel analysis:** Create overview of vessel-segments operating in area of interest, including number of vessels, voyages, fuel consumption and CO<sub>2</sub> emissions in a reasonable timeframe (Tab. 4.1)

**Vessel specific trade:** List products (export and import) per volume, value and vessel segments relevant to the cargo type (Tab. 4.2 / Tab. 4.3)

**Vessel specific service:** Make overview of international and domestic service handling (ferries, cruises, RoPAX, tugboats etc.), and map service against vessel segments (Tab. 4.4 / Tab. 4.5)

**Green premium:** Estimate incremental cost for green transport per unit of cargo / service, based on publicly available data (Tab. 4.6 / Tab. 4.7)

## Why collect this data

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**Vessel analysis (Tab. 4.1):** Understand which vessels appear in your area, how often they appear and what their emissions look like. This will help select the green corridors with biggest emission reduction potential and identify the most relevant vessel segment with the biggest invest vs. emission potential.

**Vessel specific trade (Tab. 4.2 / Tab. 4.3):** Get a product-specific commercial overview in the defined area to select green corridors with specific products or cargo type profiles.

**Vessel specific service (Tab. 4.4 / Tab. 4.5):** Get a service-specific commercial overview in the defined area, to select green corridors with specific service types or to be aware of relevant regulatory and safety aspects.

**Green premium (Tab. 4.6 / Tab. 4.7):** Well functioning green corridor projects depend on a good understanding of financial feasibility as well as customer willing to pay extra for green services.

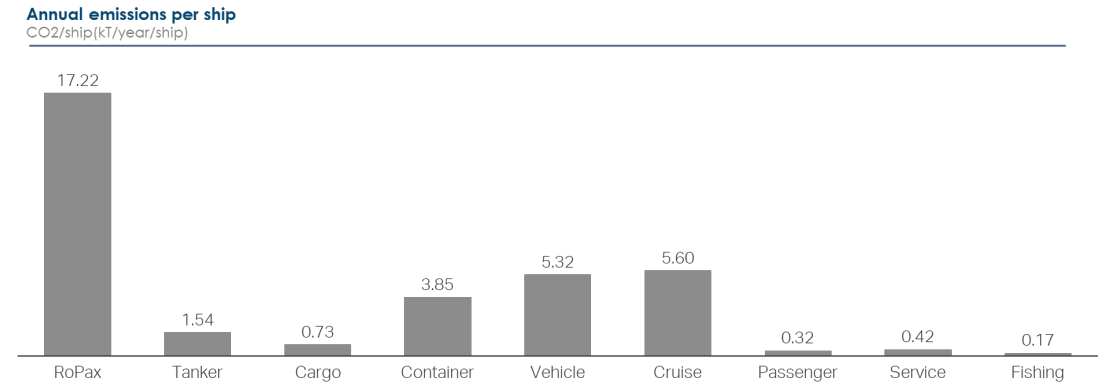


## Additional recommendations

- I. Aim to find **key customers** who have a pledge to decarbonize their transport and may be willing to pay for green transport.
- II. Investigate **options with other stakeholders**, including ports and fuel producers.
- III. If relying on **electricity to decarbonize**, consider where you will get the **green energy** from.

## Illustrative examples

	Trade route (Region to region)	Proxy corridor (port to port)	Product	Volume (M TUE)	Value of goods (€M)
<b>Bulk - dry:</b> Iron ore trade routes	Australia – China	Hedland –  Tianjin	Iron ore	TBD	TBD
	Australia - Japan	Hedland –  Tokyo	Iron ore	TBD	TBD
<b>Bulk – dry:</b> Grain trade routes	Australia - China	Hedland –  Shanghai	Cereals	TBD	TBD
	Australia – Netherlands	Adelaide –  Rotterdam	Oil seeds	TBD	TBD
<b>Cargo:</b> Container trade routes	Australia – Singapore	Brisbane –  Singapore	Container	TBD	TBD
	Australia – China	Brisbane –  Shanghai	Container	TBD	TBD



# Step 5: Policy, regulatory, and funding

## Key questions

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- I. Which policies and regulations can possibly affect establishing a green corridor?
- II. What funding options exist in the different phases of establishing a green corridor (regional, national, international)?
- III. Which discrimination factors need to be considered when assessing green corridors in this area?

## Chapter analyses

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- A Landscape relevant:
- **regulations,**
  - **policies and**
  - **funding options**

depending on the defined area of interest (social, ecological, commercial, technical e.g. map electric poles in the area, incentive programs, nature reserve)

Identify discrimination factors within the above-mentioned landscape for defined area of interest





## Proposed work

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Identify policy, regulatory and funding discriminating factors, which will allow selecting green corridors in one area in favour of another.

**Assessment insides:** Map (discriminating) factors in tables and maps depending on your level of assessment (Tab. 5.1, 5.2, 5.3, 5.4). Assess area-specific information regarding, e.g. social or ecological incentives, funding or supporting development in infrastructure, climate targets and ambitions.

## Why collect this data

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**Assessment insides** (Tab. 5.1, 5.2, 5.3, 5.4): Identifying policy, regulatory and funding (discriminating) factors in your defined area will help identify the most optimal green corridor options.



## Level of Regulatory Involvement

	Continent	Sub-Continent	Country	Region
Port	Reg. Inv. level 1	Reg. Inv. level 1	Reg. Inv. level 1	Reg. Inv. level 1
Region	Reg. Inv. level 2	Reg. Inv. level 2	Reg. Inv. level 2	
Country	Reg. Inv. level 3	Reg. Inv. level 3		
Sub-Continent	Reg. Inv. level 4			

Mandatory

Optional

### Indication of detail level

The figure on the left helps to decide which level of Regulatory Involvement is relevant for your regulatory assessment.

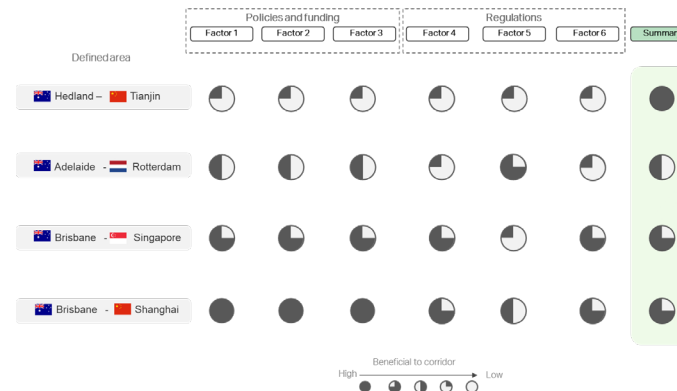
E.g. the defined region for possible green corridors is Chile → start your assessment on region level.



## Additional recommendations

- I. Regulatory: provide **clear regulation for using alternative fuels**, to make implementation easier.
- II. Regulatory: develop regulation that provides **financial incentive** to decarbonize and rewards first movers.
- III. Politicians: develop **support schemes** and provide **funding** for first movers.
- IV. Politicians: **support green corridor projects** to prove they are possible, then **push for regulation** to encourage alternative fuel adoption.
- V. Defined areas: build your awareness of different kinds of fuels and how to handle them, to prepare the **social readiness and acceptance**.
- V. Defined areas: recognize that **readiness for new fuels** early can be turned into a **competitive advantage** that could provide **growth opportunities in the area**.

## Illustrative examples



# Step 6: Potential green corridor selection framework

## Key questions

- I. Which parameter can be used as **selection criteria** and how are they **ranked and weighted** by the stakeholders internally?
- II. What are the **possible green corridors** and how are they **ranked** against the selection criteria?
- III. What are the **CO<sub>2</sub>e emissions** and how much **fuel** is needed in the relevant corridors?

## Chapter analyses

- A Green Corridor **selection criteria** (might be related to vision and objectives) and **ranking** (stakeholder-specific) of criteria
- B **List of possible green corridors** depending and incl. selection criteria
- C **Estimate CO<sub>2</sub>e emission and fuel consumption** for relevant corridors



Potential green corridors are identified, and preferred ones can be moved to Feasibility phase



## Proposed work

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**Corridor selection criteria:** Identify relevant Corridor Selection Criteria based on vision, objectives (as outlined in Chapter 1) and other insights related to the defined area of interest

**Rank Corridor Selection Criteria:** A ranking of the criteria is based on insight and subjective (stakeholder-specific) choices (Tab. 6.1)

**List green corridors:** Each criteria configuration will lead to identification of a series of prioritized green corridors (Tab. 6.2)

**CO<sub>2</sub>e emission and fuel consumption:** It is recommended to calculate the emissions and fuel consumption for your preferred corridors (Tab. 6.3)

## Why collect this data

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**Corridor selection criteria:** Define the Corridor Selection Criteria as your indicator of which data points will be key for your final ranking / prioritization of potential green corridors.

**Rank Corridor Selection Criteria (Tab. 6.1):** Rank and weight your criteria against your preferences → this will prioritize your possible green corridors.

**List green corridors (Tab. 6.2):** This is the final result of your decisions and prioritization.

**CO<sub>2</sub>e emission and fuel consumption (Tab. 6.3):** After picking the most promising corridors this calculations will bring even more detail and a better basis for further decisions.



# How to get from A to B

## Chapter analysis

A Green Corridor **selection criteria** (might be related to vision and objectives) and **ranking** (stakeholder-specific) of criteria



B **List of possible green corridors** depending and incl. selection criteria

Criteria	Name	Table
1	Transport of cargo / service xy	Tab. 3.2, 3.3 and 4.2 to 4.5
2	Domestic trade route	Tab. 4.2 to 4.4
3	International trade route	Tab. 3.2, 3.3, 4.2, 4.3 and 4.5
4	Transport of top 10 cargo	Tab. 3.2 and 3.3
5	Primary trade routes	Tab. 4.2 to 4.4
6	Expected future growth, CAGR 2021-2025	Tab. 3.2, 3.3 and 4.2 to 4.5
7	Any corridor from largest port	Tab. 3.2 and 3.3
8	CO2 emissions	Tab. 2.5, 2.10 and 4.1
9	Any corridor until 2030	Tab. 2.2, 2.3, 3.5 and 3.6
10	Use of alternative fuel 1	Tab. 2.2, 2.3, 3.5 and 3.6
11	Regulatory feasible	Tab. 5.1.x

Selection criteria might not always be one-dimensional, meaning that you will have to combine data from different tables and include qualitative knowledge. In this case an objective result is always difficult, and the list of corridors will be influenced by the ones executing the pre-feasibility assessment.

Please keep in mind that the **qualitative data**, which will be gathered during the **interviews** with the relevant **stakeholders** are equally important and can give an indication on what to focus on.



## Illustrative examples

		Green Corridor Name 1	Green Corridor Name 2	Green Corridor Name 3	Green Corridor Name 4
<b>Chapter 2: Alternative fuels: Timing, capacity, emission and cost</b>					
Supply for alternative fuels - 2030	ktons	4,500	1,000	1,000	3,000
Fuel cost - 2030	\$/ton	2,000	1,200	500	800
<b>Chapter 3: Port, storage, and bunkering infrastructure</b>					
Port share of total tonnage	%	12%	50%	10%	28%
Port share of total value	%	48%	19%	20%	13%
Port Readiness Level - 2030	1 = low, 9 = high	3	4	1	7
<b>Chapter 4: Trade routes, vessel, cargo and services</b>					
Volume	ktons	10,000	5,000	2,800	722
Value	\$	441,000,000	1,995,000,000	1,419,000,000	468,000,000
Incremental cost of green per product	%	10%	27%	1%	5%
<b>Chapter 5: Policy, regulatory and funding</b>					
Beneficial regulation environment	1 = low, 5 = high	2	3	5	1
<b>Chapter 6: Potential green corridor selection frameworks</b>					
Annual emissions per corridor	tCO <sub>2</sub> e	3,700,000	2,337,000	1,379,000	2,941,000



# Step 7: Next steps

## Key questions

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- I. Which **relevant stakeholders** throughout the value chain are needed to enable the preferred green corridors?
- II. What are the **steps needed to initiate Feasibility phase**?
- III. What is the **overall roadmap toward operationalizing the green corridor** and what **actions do each stakeholder** need to take?
- IV. What is the required **project governance** to deliver the roadmap for the next phase (Feasibility)?
- V. What are the **resources and capabilities required to complete the next phase** (Feasibility) of the project?
- VI. What is the **internal and external stakeholder communications plan**?

## Chapter analyses

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- A. Initiate **Consortia Incubation Workshop** with relevant stakeholders throughout the value chain in defined area
- B. Prepare for further steps in the **Feasibility phase** to run detailed assessments on chosen green corridors  
  
Define the **project governance, funding and resourcing requirements** to complete the Feasibility phase
- C. Develop a **communications and engagement plan** for internal and external stakeholders in the Feasibility phase



Socialize and sign off the integrated roadmap





## Proposed work

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- I. Identify relevant participants for the Consortia Incubation Workshop (CIW) and prepare material (report, workshop agenda etc.).
- II. Conduct CIW and present results as well as bring relevant stakeholder for the upcoming feasibility phase.
- III. Perform initial scoping of the feasibility phase, including governance, timeline, funding etc.
- IV. Produce and agree on roadmap for feasibility phase.
- V. Communicate the results of the pre-feasibility study in accordance with planned communication strategy.



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