



Danish Pilot Study on Ammonia

Mapping of barriers in the HØST PtX project

03 December 2024



North Sea's Energy Potential

- Denmark can become a net exporter of offshore wind energy with a capacity of 25-35 GW in the Danish North Sea by 2050
- PtX plants can stabilise electricity prices and support the expansion of renewable energy in Denmark's expected 35 GW offshore wind build-out



31 PtX projects

- 18 Hydrogen
- 10 Methanol
- 3 Ammonia



Identifying pilot project suitable for ammonia

The Roadmap project :
Longlisted 81 potential green corridors



- Short-listed 6 promising green shipping corridors:

Hirtshals – Larvik

Ystad – Rønne

Umeå – Vasa





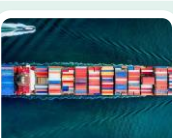
Stockholm – Turku

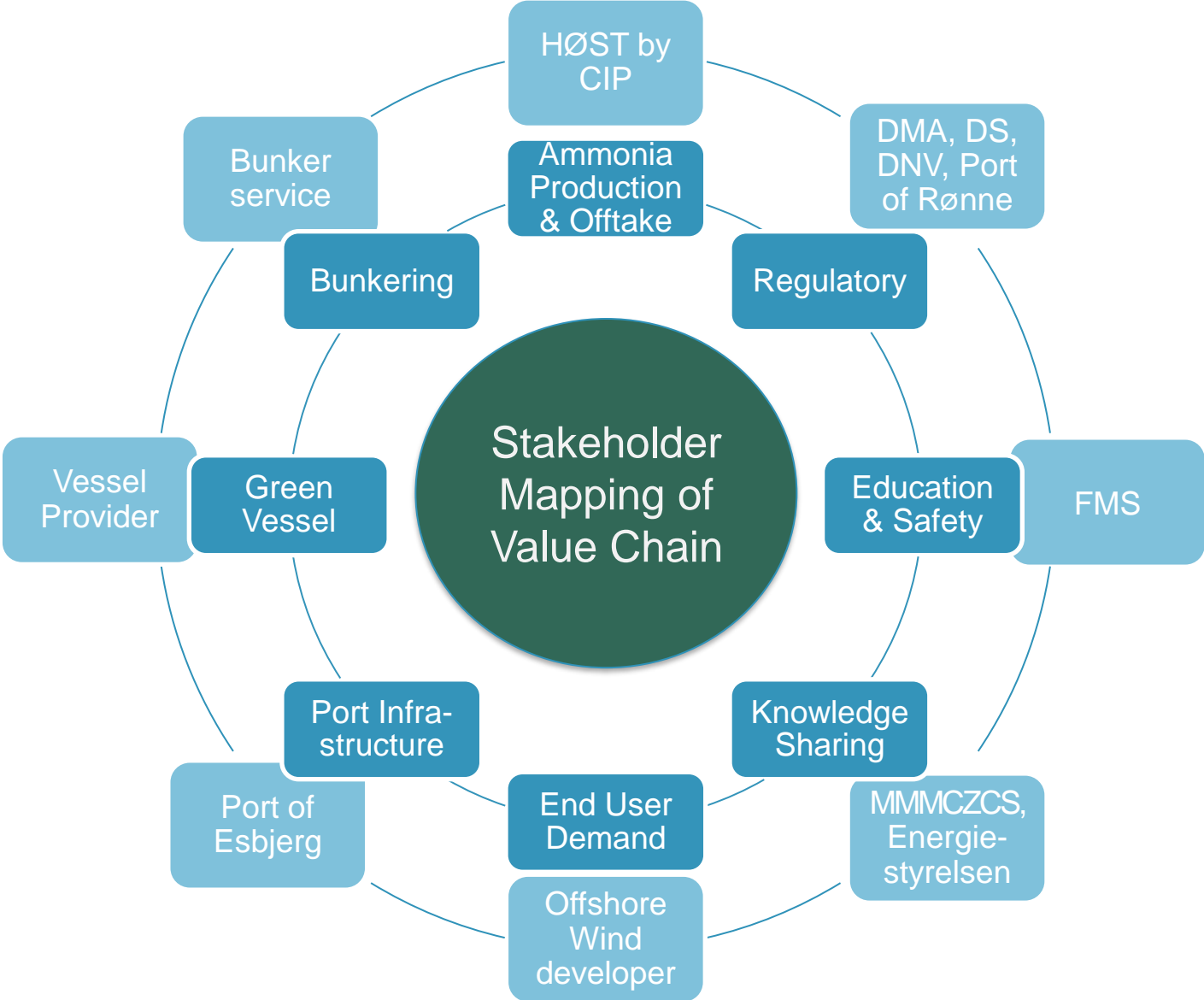
Sandefjord – Strømstad

Torshavn – Reykjavik - Nuuk

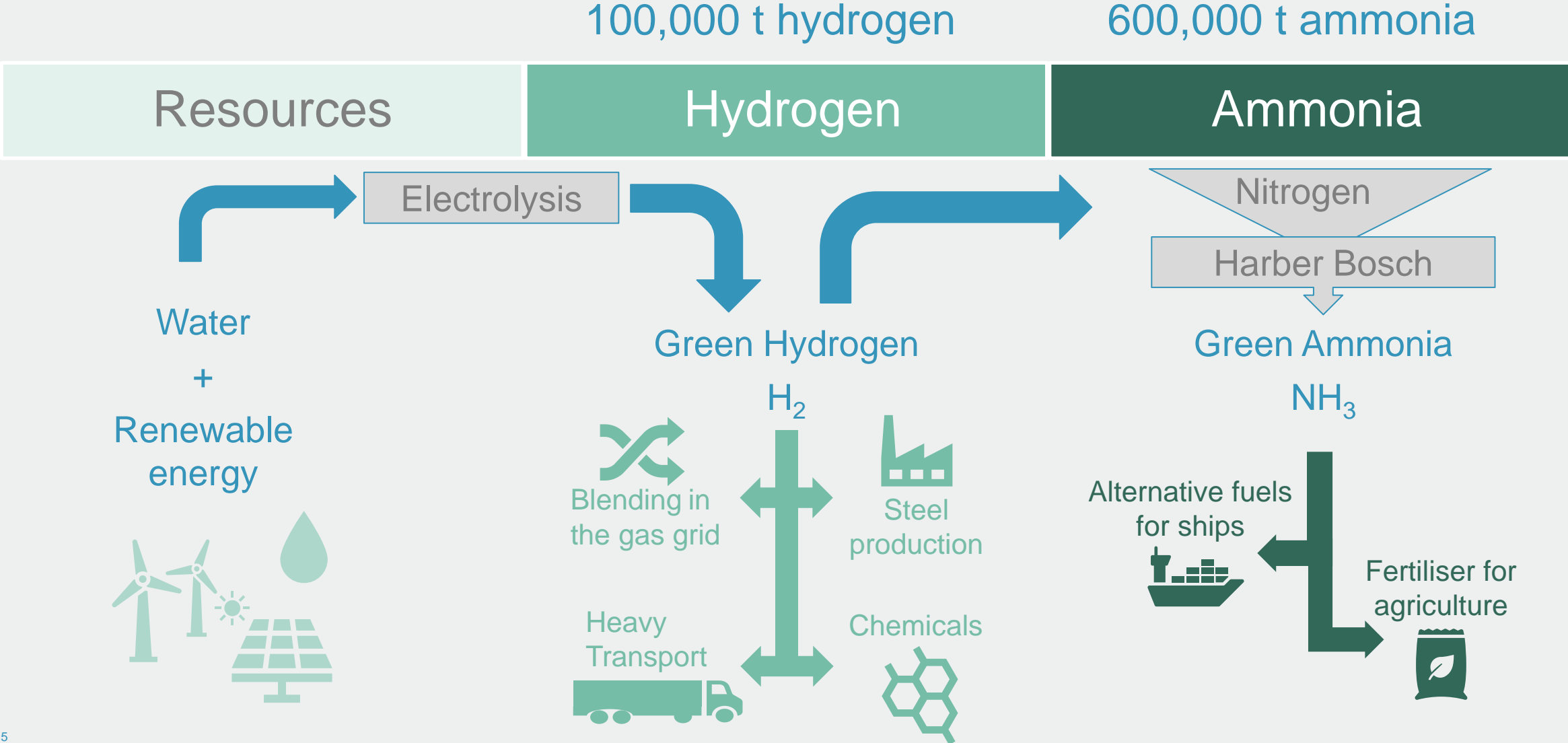
Providing green ammonia to shipping in Esbjerg

Pilot project stakeholders

-  HØST by CIP
-  Danish port **Port of Esbjerg**
-  Bunkering company **Monjasa**
-  Danish Shipowner and short sea RoRo operator **DFDS**
-  Short sea container feederline operator **Unifeeder**



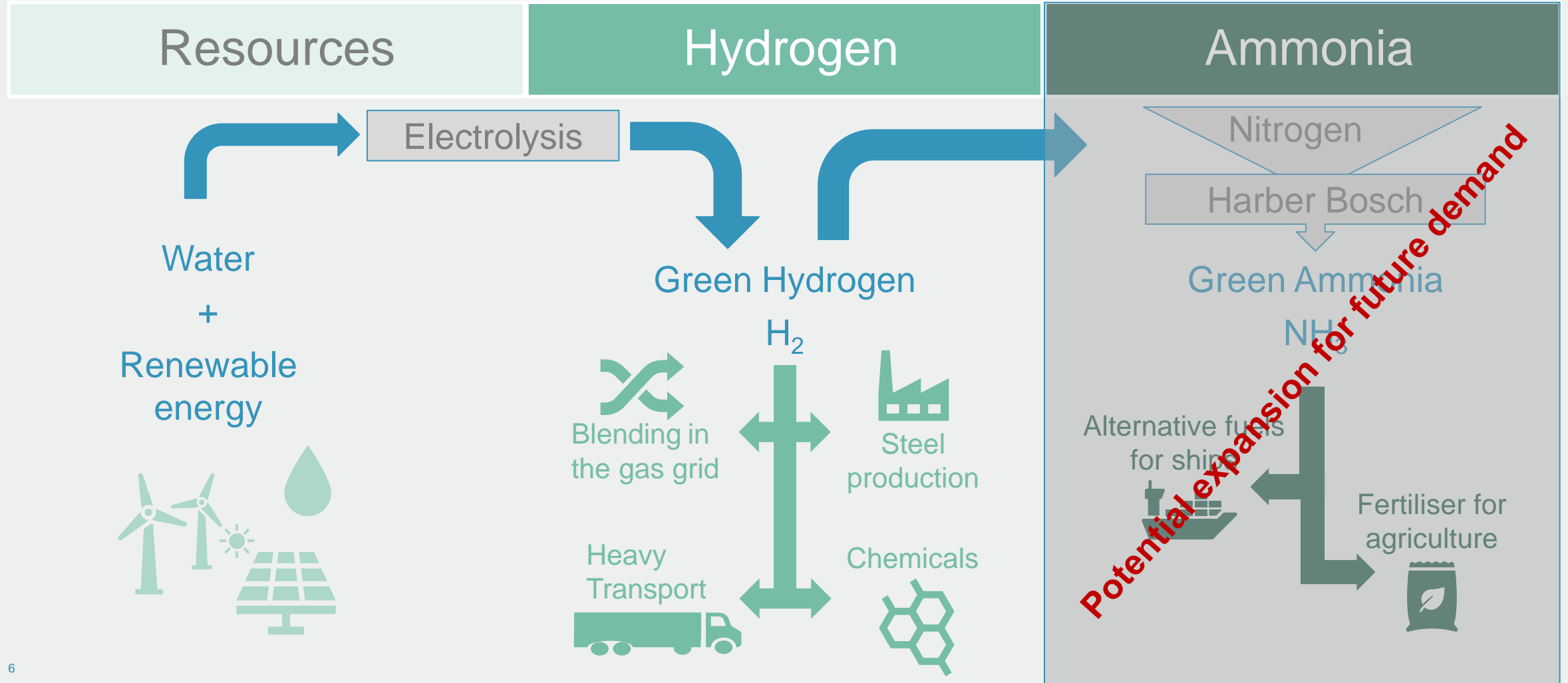
HØST in planning



HØST now

Market opportunities

Lack of demand



Identified Barriers



Energy cost/
competitive pricing



Political decisions



No existing supply
chain



Infrastructure



Ammonia supply
chain safety
requirements



Technical maturity



Long-term offtake
agreements



Misalignment



Public perception

Main Barriers

Demand and cost

Energy cost/
competitive pricing

Political decisions

Long-term offtake
agreements

Technology and safety

Ammonia supply chain
safety requirements

Technical maturity

Public perception

Fuel availability

No existing supply
chain

Infrastructure

Misalignment

Actions to overcome barriers



Collaborative Cost and Risk Management Tools

- Procurement policies
- Green financing
- Contracts for Difference (CfD)



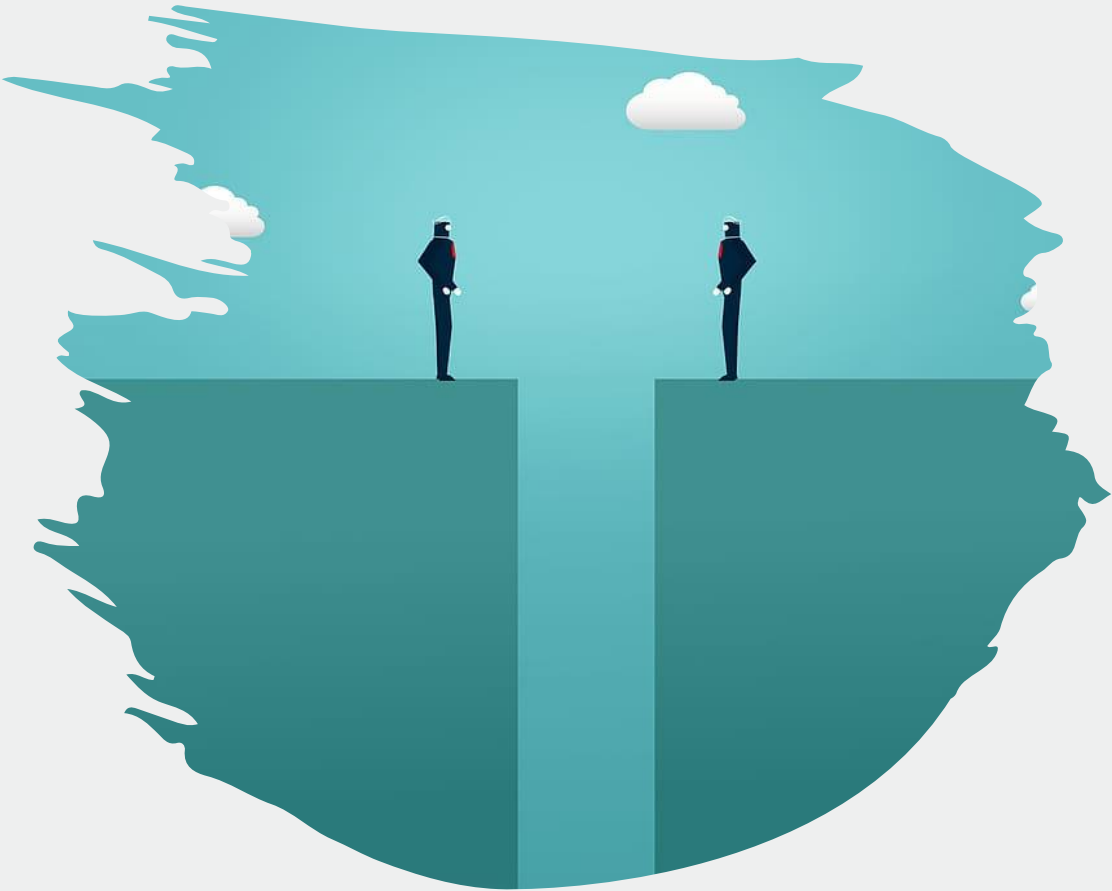
Developing a Shared Framework

- Unified approach to safety standards
- Promotion of infrastructure
- Standardized GHG emissions tracking



Alignment of stakeholders

- Structure incentives
- Funding
- Recognition to reward alignment with common goals





Thank you

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