

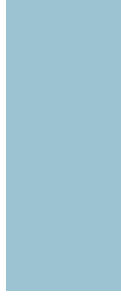
PRIVATE AND CONFIDENTIAL

Introduction to Copenhagen Infrastructure Partners and CI Energy Transition Fund I (ETF)

North European Green Shipping Corridor Network



Bornholm
September 2022

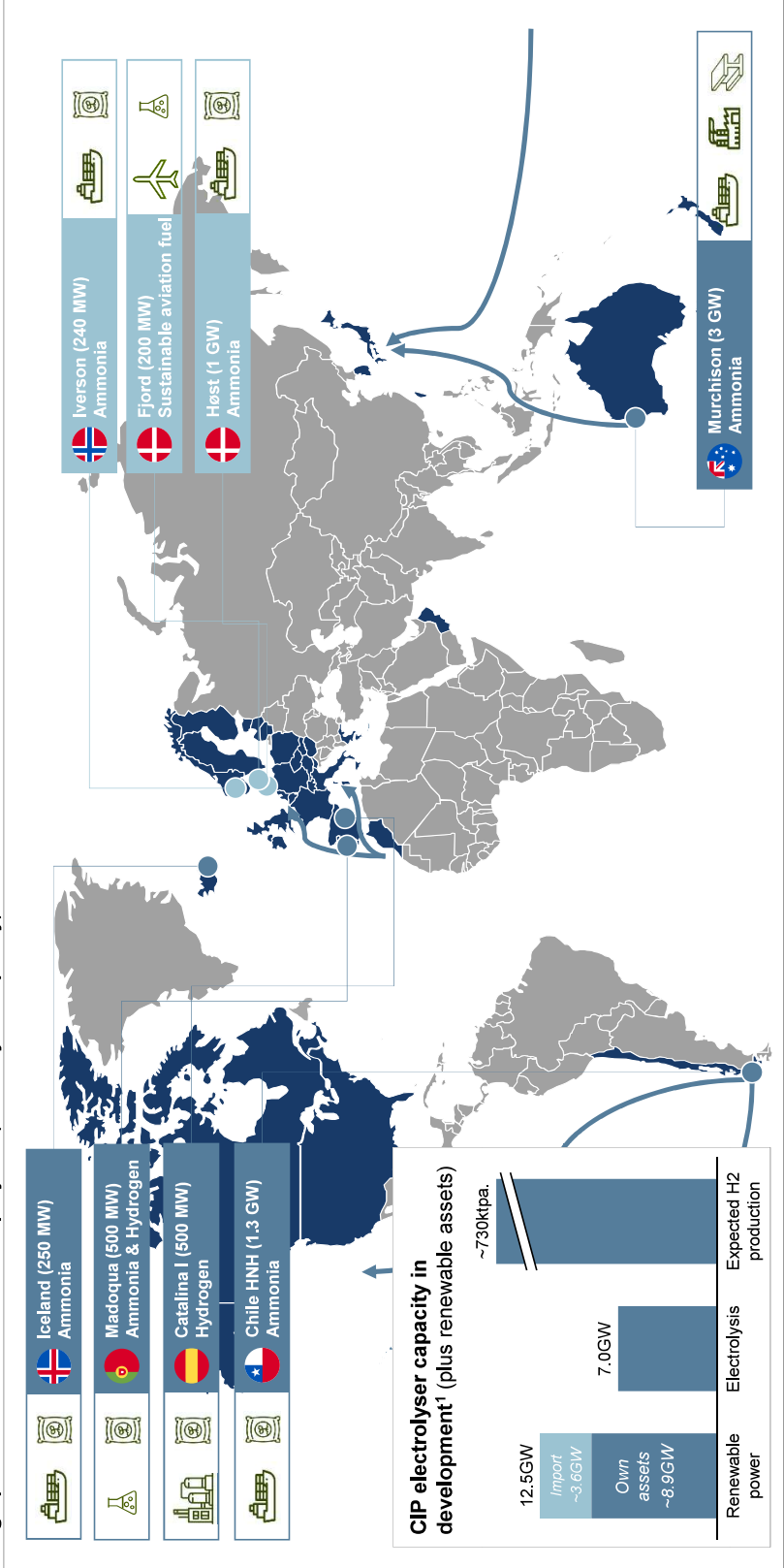


CIP ETF I has built a market leading portfolio of attractive Power-to-X projects

With 7GW of electrolyser in development, CIP has positioned itself as a pioneer within next generation renewables

Geographical overview of CIP ETF I projects (electrolysis capacity)

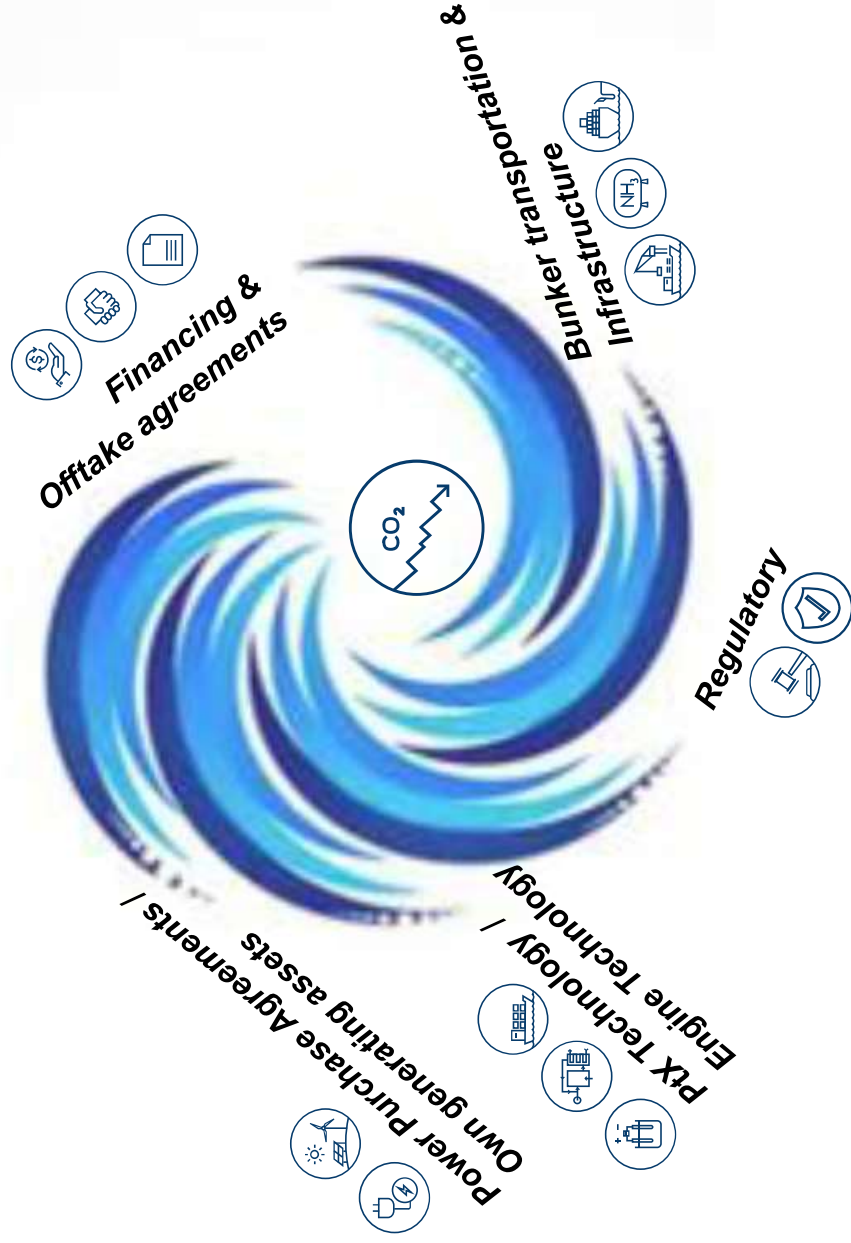
● P2X only ● P2X + renewable power production ● Markets relevant for CIP ETF I ● Project leads



Notes: 1) Leads not included

Many factors need to come together for a whole new industry to take off

Decarbonizing the maritime industry is as big a change as going from wind to steam and then oil – next step is zero carbon fuels



All key factors are progressing – but timing is a key element

Key Factors	Challenges / Barriers	Status and mitigation
PPAs or Own generating assets	• Power Purchase Agreements • E.g. an offline plant in a good location producing ~2 mtpa ammonia needs ~6GW power from ~660 wind turbines plus 8000 ha solar panels.	• In the first phase the ETF is focussing on European grid connected PtX plants • The next phase is very large Island mode plants based on globally optimal power supply locations shipping the product to Europe
Technology / Scaling of PtX and Engines	• PtX and ammonia production from 2025 - 2029 and beyond. • Two stroke engine said to be ready by 2024. • Four stroke engine said to be ready by 2025. • First new builds ex yard at best by ~2026 – 2028.	• The ETF focus on Ammonia as the best solution for a future green fuel • Close dialogue with engine producers. Joint discussions with ship owners. • Four stroke segment might be easier for retrofit. • Identifying first movers and fast followers.
Bunker transportation & infrastructure	• Expansion of existing markets for transportation and storage. • No / little experience / protocols for ammonia bunkering and onboard handling / burning. • Perception management / fear of the unknown / misinformation.	• Active dialogue with transporters, ports, storage and bunker operators. • Ammonia bunker & sailing trials. • We see an option for a 'neutral party' to develop a 'Q&A' with input from relevant players in the value chain.
Financing & Offtake agreements	• CI ETF I closed at EUR 3bn. Covers ~15-20%. • Co-investments and bank loans are needed before construction will commence. • FIDs starting in 2023 - 2025 + 2 - 4 years construction. • Offtake agreements required for project financing to happen	• Chemicals, Fertilizer, Co-firing industries might adapt before shipping. • Long term green ammonia shortage expected. • Identifying mature/strategic partners in shipping.
Regulatory	• IMO. • EU ETS. • Individual Regional / National regulations. • Classification societies / Safety protocols.	• Fully supported tax incentives/penalties and more initiatives are required – whether global, regional or national. • Being pragmatic we will not wait for it to happen • Involve classification societies in trials for early learnings • Use experience from existing ammonia industry.

Liquid Wind's input on 'Closing the Gap'

Bornholm, 15 September 2022



Info@LiquidWind.se

[LiquidWind.se](https://www.liquidwind.se)

Liquid Wind and our decarbonization ambitions

What is our business?

- We are an **advanced project developer** that delivers green shovel-ready electrofuel projects to investors
- First project 'FlagshipONE' in Örnsköldsvik (SWE) using Port of Gothenburg as green methanol Hub

We want to make an impact

- Project portfolio is rapidly expanding and facilities are increasing in size (focus on cost reductions and getting volumes to market)
- **Ambition:** 500 units with a capacity of 100,000 tpa of green eMethanol, so in total a production capacity of **50 mio tpa** in 2050



Barriers for transition to realize ambitions

Several areas are setting up hindrances

1. Regulation is **not** clear – and expected tools are too weak
 - Still awaiting conditions for Renewable Fuels of Non-Biological Origin (**RFNBO**) in Delegated Act from revised RED-II – various drafts sending many mixed signals
 - **EU ETS** price and mechanisms are not reducing gaps to conventional fuels enough
 - **FuelEU Maritime** not clear (proposed introduction 2% in 2025, 6% in 2030 etc.)
 - **IMO** discussed measures (EEXI, CII, SEEMP) are developing slowly, and requires solid price signal from EU ETS
 - **Well-to-Wake**. Not clear what is perceived as renewable – ex. is LNG green?
2. End customers willingness to pay green premiums not mature
3. Grants are good but also need for opex support
4. Current market conditions with e.g., high power prices not helpful to get going

Incentives and initiatives to support transition

Wish list

1. Introduction Support Scheme(s) for green / electro-Fuels
 - **Feed-in-Tariff** or **Contract-for-Difference** (as for solar PV and wind parks historically)
 - Shall include mechanisms to **reduce** the support amounts over time
 - Can be on Country, Scandinavia, SECA and/or EU levels (e.g., using EU ETS funds)
2. Regulatory tightening and clarity
 - **Clear RFNBO conditions** that shall be workable in practice and assist massive roll-outs
 - **Strengthen EU ETS** price mechanism to reduce gaps to conventional fuels
 - **Include maritime sector** in EU ETS and strengthen targets
 - Focus must be on making thorough **Life Cycle Analyses, Well-to-Wake** (FuelEU Maritime)
 - Sort out what is perceived as renewable – conventional LNG is not green

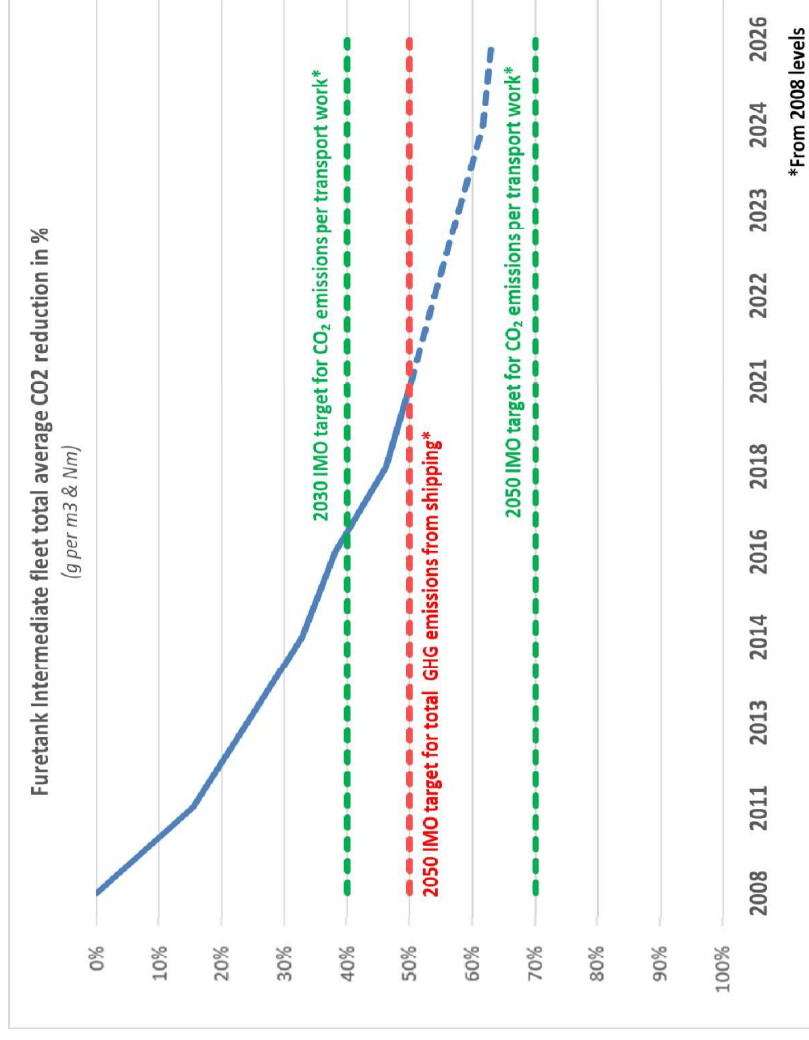
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Ulrik Falkenberg Lending
Ulrik@LiquidWind.se

Ambitions for decarbonize – Drivers and Future Expectations



Together with our partner, we have ordered 13 VINGA - designs vessels, an investment of 4.2 billion SEK - without any subsidies.

- Use biogas for propulsion
- Engage in projects to continue increasing the overall performance of the vessels
- Shore power in all ports for load and discharge
- Continue to develop and be a frontrunner.
- Minimize ballast legs and increase ton-miles.

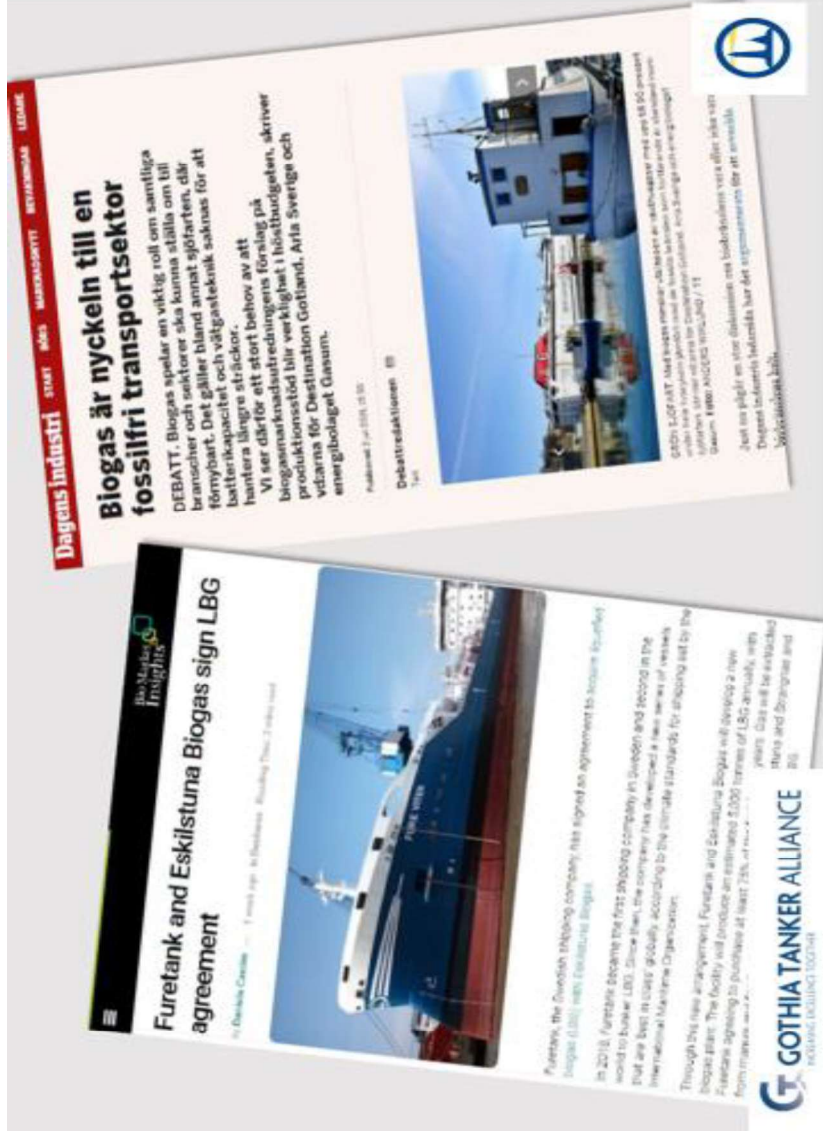


What are the barriers?

Poor infrastructure for bunkering and delivering LBG, and shore power connection

Our feeling is that most of the initiatives need to come from our side.

Our agreement with Eskilstuna Biogas and other suppliers makes bunkering of LBG in Gothenburg doable – we need more ports!



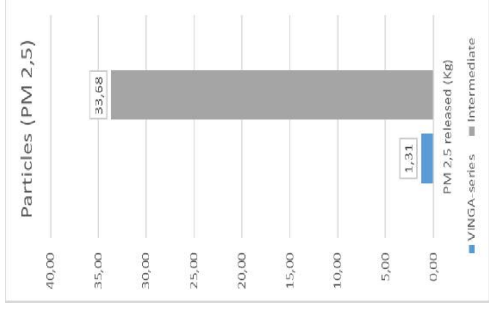
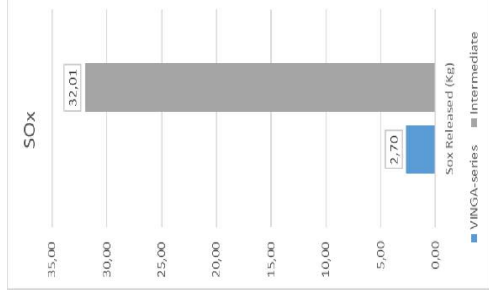
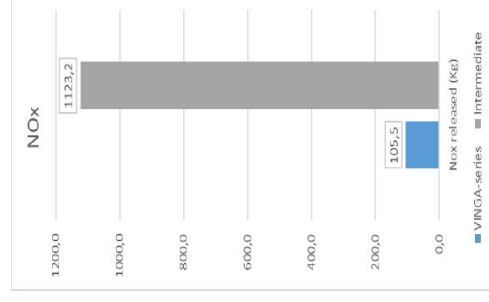
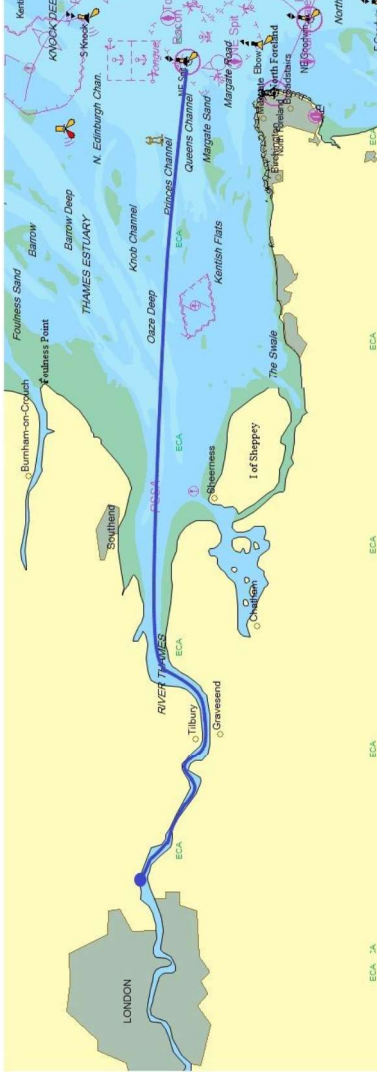
Accelerate changes

Several ship owners have already installed equipment, such as shore power etc, this is still not possible.

Increase the environmental scores needed for economic incentives – and the early movers to get greater reward

Strict ETS, CII etc, shall payoff to be an early mover.

Benefits for reducing all emissions, including particles.



Playing our part in creating tomorrow's world

About VTTI

VTTI is one of the world's leading storage providers for energy and other essential products like chemicals.

Founded in

2006

17

terminals

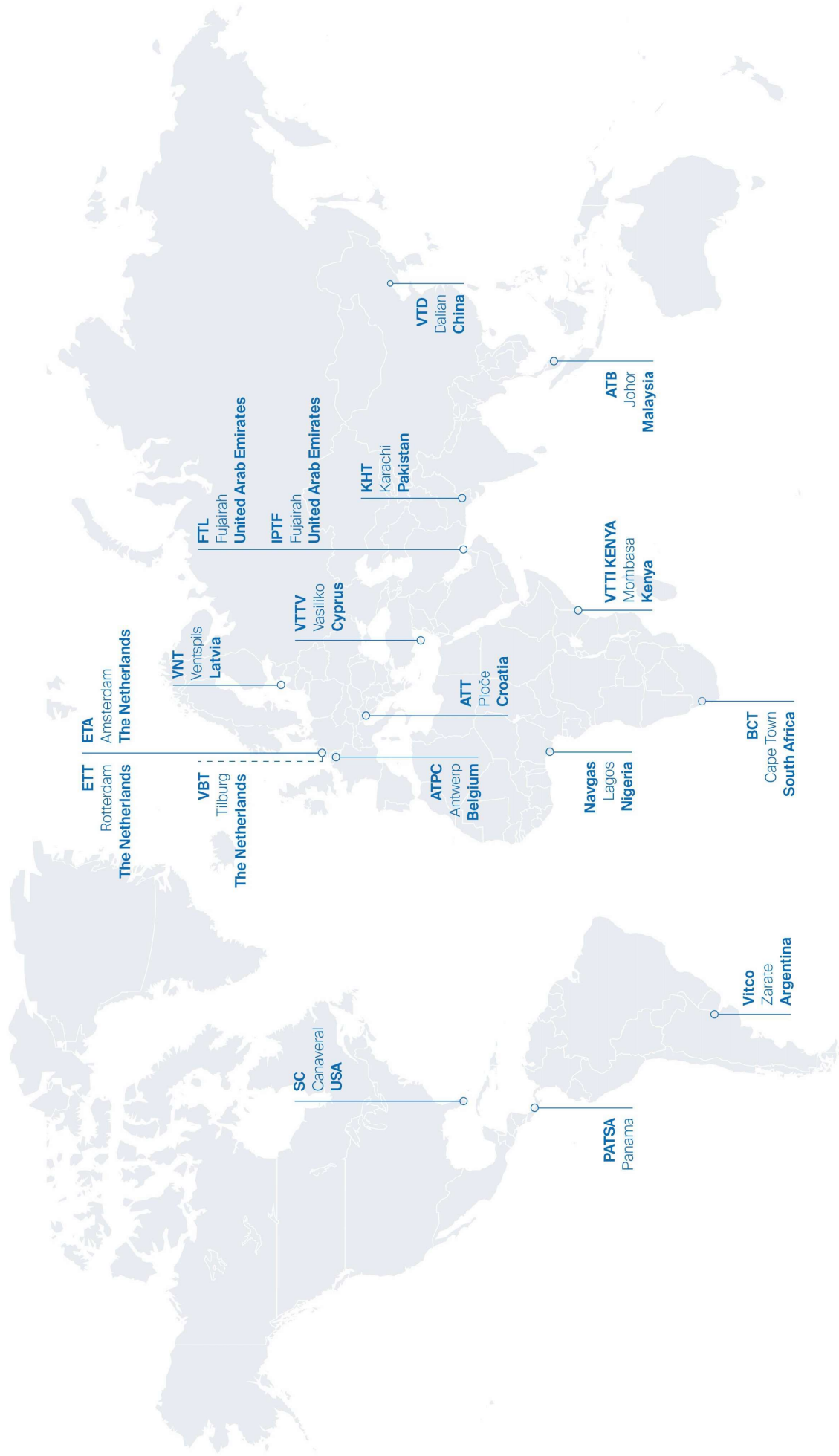
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continents

10.300.000

m³ gross storage capacity







VTI's Diversification Strategy



Energy storage
Gas
Chemicals
Biofuels
New Energies

RNG

VTTI is actively investing in a Renewable Natural Gas (RNG) portfolio to produce fuels, heat, electricity and by-products for such as organic fertilizer from organic side and waste streams.

Hydrogen Carriers

VTTI New Energy is focusing on handling blue or green hydrogen, particularly in the form of the emerging hydrogen carriers such as ammonia and LOHC's, to facilitate the new hydrogen economy.

CO₂

Given the urgency to reduce GHG emissions and the time it takes to build a new energy economy, VTTI New Energy will offer to capture and store recycled CO₂ for further usages and so will enable a direct impact on reducing CO₂

Renewable products

VTTI New Energy is investigating how large agricultural, municipal and industrial side streams and residues can be transformed into valuable products. This includes solutions such as waste plastic-to-liquid fuels and refuse-derived fuel-to-chemicals.

Hyper modern bio-energy facility on an industrial scale

VTI Bio-energy Tilburg

The facility will process local organic residual streams (manure, organic waste and other organic residuals)

325.000
Ton biomass input

23.000.000
m³ biogas

40.000
ton organic fertilizer



Joining forces to accelerate the energy transition



Co-funded by
the European Union

Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping

Transition barriers for a terminal operator



Timing the transition to a low energy density business

- // 40% or less energy content vs fossil fuels means approx. 2.5x or more jetties required to handle the same energy
- // New product require different tanks & safety distances might be different, further affecting storage capacity on site
- // Launch scale infrastructure will not provide the best economics post 2030 (pre-investments required)
- // Scale up curve highly uncertain, while ongoing business continues

Why zero carbon fuels adoption has been slow so far



Emissions have not been a priority

- // CO2 emission costs are still largely externalised for most companies
- // Emission targets are set in the distant future
- // Example: fossil LNG and slow steaming will enable IMO compliance to or beyond 2039
- // Marketing premiums are currently one of few incentives to shift to zero carbon fuels

Incentives for green fuels adoption



Clear & coherent policies to create demand & supply

- // Binding emission targets <2030 with meaningful financial penalties (**demand**)
- // Contracts for difference on H2, E-fuels & waste based fuels (**supply**)
- // Support clean fuel import & distribution infrastructure as European focus is to maximize local green electron usage in electrification

Thank you