ZERO EMISSION SERVICES

A system change to power clean inland shipping corridors

New Maritime Wave Conference *Propeller Club of Northern California*

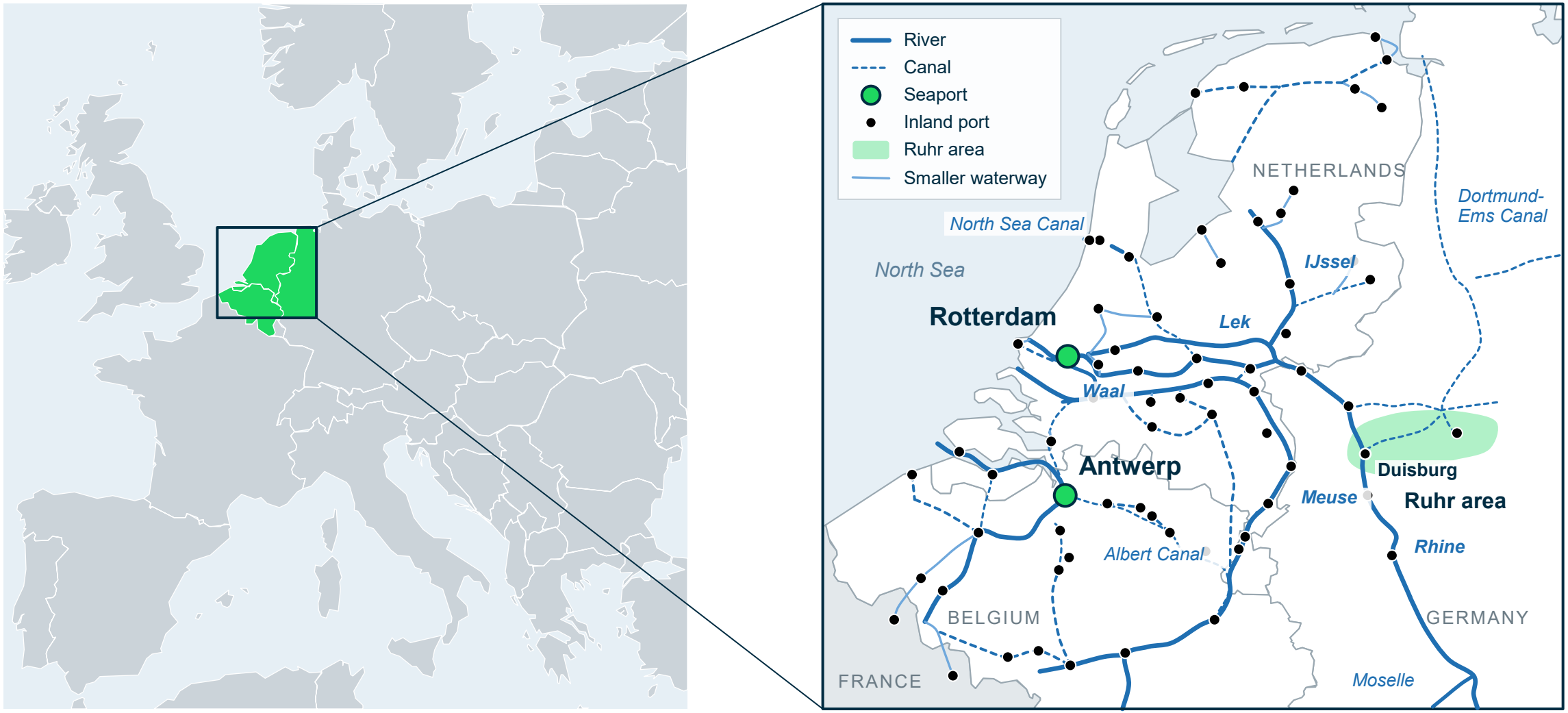
November 10 2026

Funded by the European Union
NextGenerationEU

Powering clean corridors.

Ports of Rotterdam and Antwerp crucial for Europe's largest industrial areas

~10.000 inland bulk & container vessels are active in this area



Powering clean corridors.



“Green Deal Inland Shipping” in the Netherlands

2023
~6.500 vessels in Dutch fleet[1]
- 1,6 mt CO2 emission
- 21,2 kt NOx emission

2030
50% emission reduction compared to 2015

2050
Climate neutral

Inland shipping fleet needs to decarbonize

1. Factsheet Verduurzaming Binnenvaart (EICB – Marin – TNO – KBN, 2023). Foto: STC

ZERO EMISSION SERVICES

All-in energy service for zero-emission inland shipping

Exchangeable **energy**



Charging infrastructure & **grid balancing**



Pay per use business model



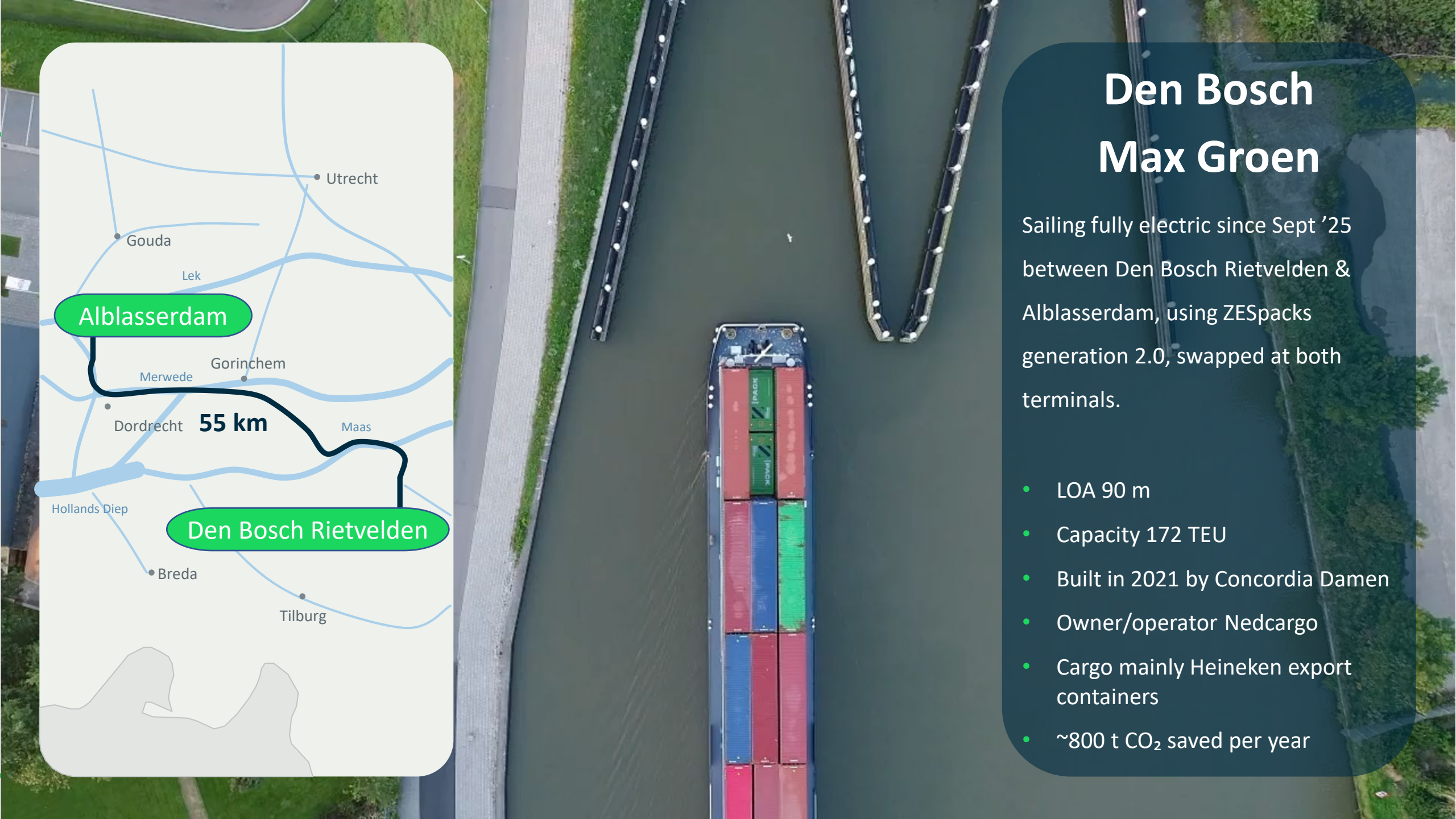
Powering clean corridors.



Alphenaar

Sailing on green electricity since ’21 between Alphen a/d Rijn & Moerdijk, using 2 ZESpacks generation 1.0 per roundtrip.

- LOA 90 m
- Breadth 10.5 m
- Capacity 104 TEU
- Main engine Oswald 2x544hp
- Bow thruster Veth-Jet 1x650hp
- Built in 2019
- Owner/operator CCT Moerdijk



Den Bosch Max Groen

Sailing fully electric since Sept ’25 between Den Bosch Rietvelden & Alblasserdam, using ZESpacks generation 2.0, swapped at both terminals.

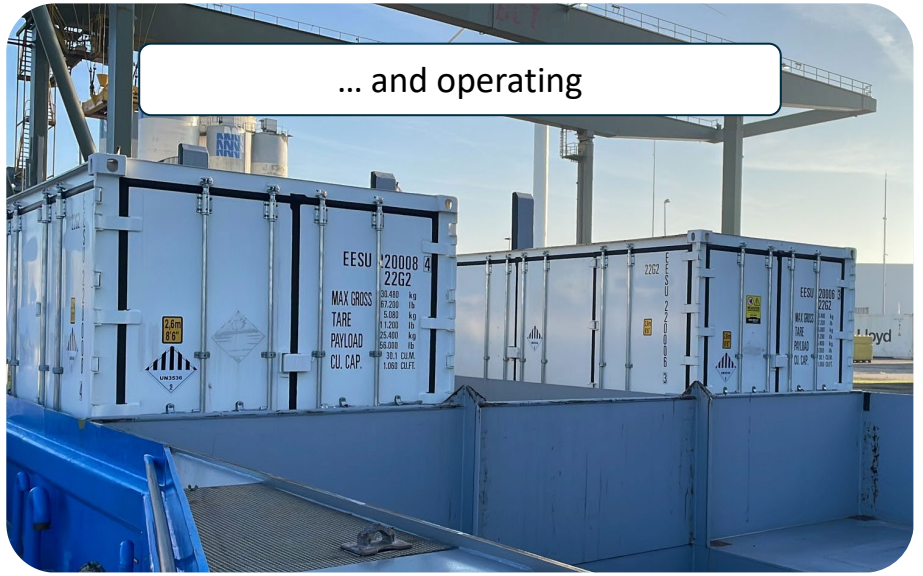
- LOA 90 m
- Capacity 172 TEU
- Built in 2021 by Concordia Damen
- Owner/operator Nedcargo
- Cargo mainly Heineken export containers
- ~800 t CO_2 saved per year

Focus on simplicity and standardization

ZESpack generation 2.0 - Swappable Modular Energy Containers

- **Zero emission energy**
  Charged with Dutch certified renewable energy
- **Future proof**
  LFP Lithium-ion batteries, ready for other future energy carries
- **Open access**
  Standardized open access interface to allow for rapid market adoption
- **Performance**
  1 MW power / 2,9 MWh / 2,6 MWh nominal[1] energy storage for a range of 60 - 90 km
- **Safety**
  Inland shipping marine type approved
- **Mobile / modular**
  Designed for maritime applications (including shocks / vibrations)
- **Asset standardization**
  Megawatt Charging System (MCS) connector for vessel and docking station





1. 2,6 MWh is comparable with 43 Tesla's with a 60kWh nominal battery

Powering clean corridors.

Infrastructure roll-out

Five stations live, eight locations by the end of the year

Operational

Alphen a/d Rijn
CCT



Alblasserdam
ITG



Den Bosch
ITG



Rotterdam Waalhaven
Truckparking



Moerdijk
CCT



Under construction – to be operational in 2026

Maasvlakte Rotterdam
Qterminals

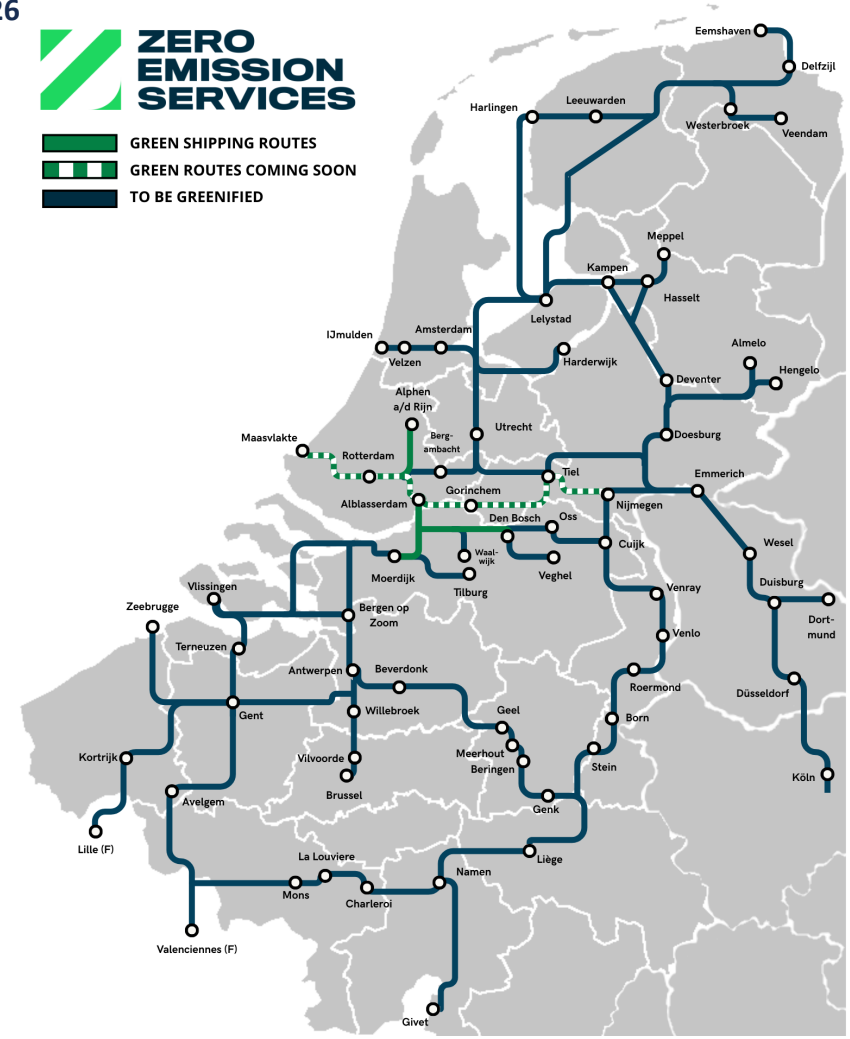


Nijmegen
ITG



Rotterdam Waalhaven
UWT

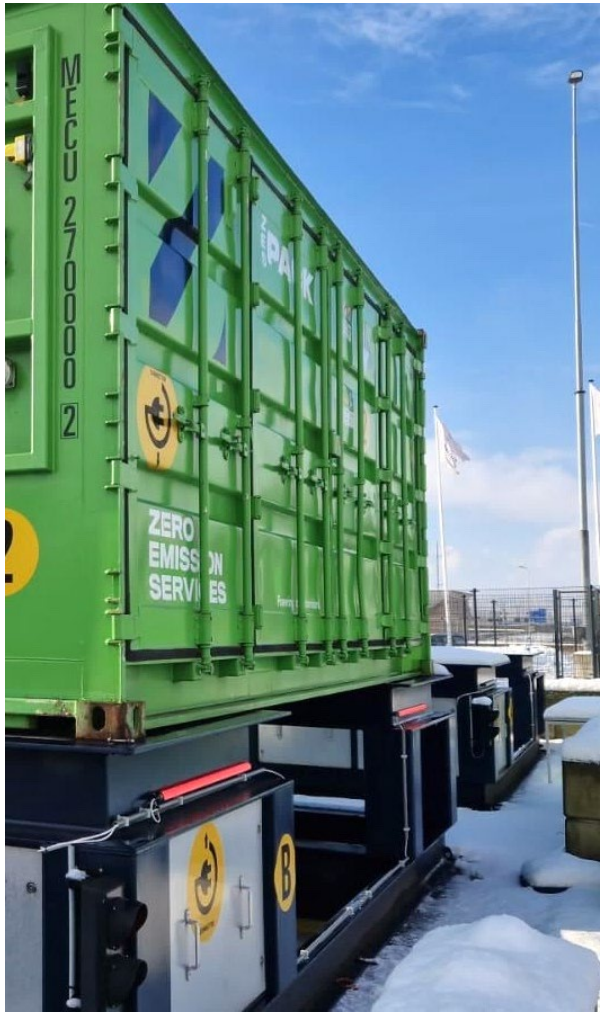




Powering clean corridors.

Electricity hub developments

Opportunities for terminals and other locations





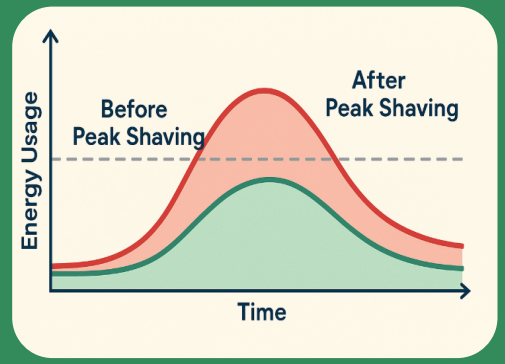
Solar and windpower storage



Temporary grid connection



Equipment charging



Peakshaving



Mobile shore power



Mobile construction power

Powering clean corridors.

Decarbonization challenges
Hurdles throughout the value chain

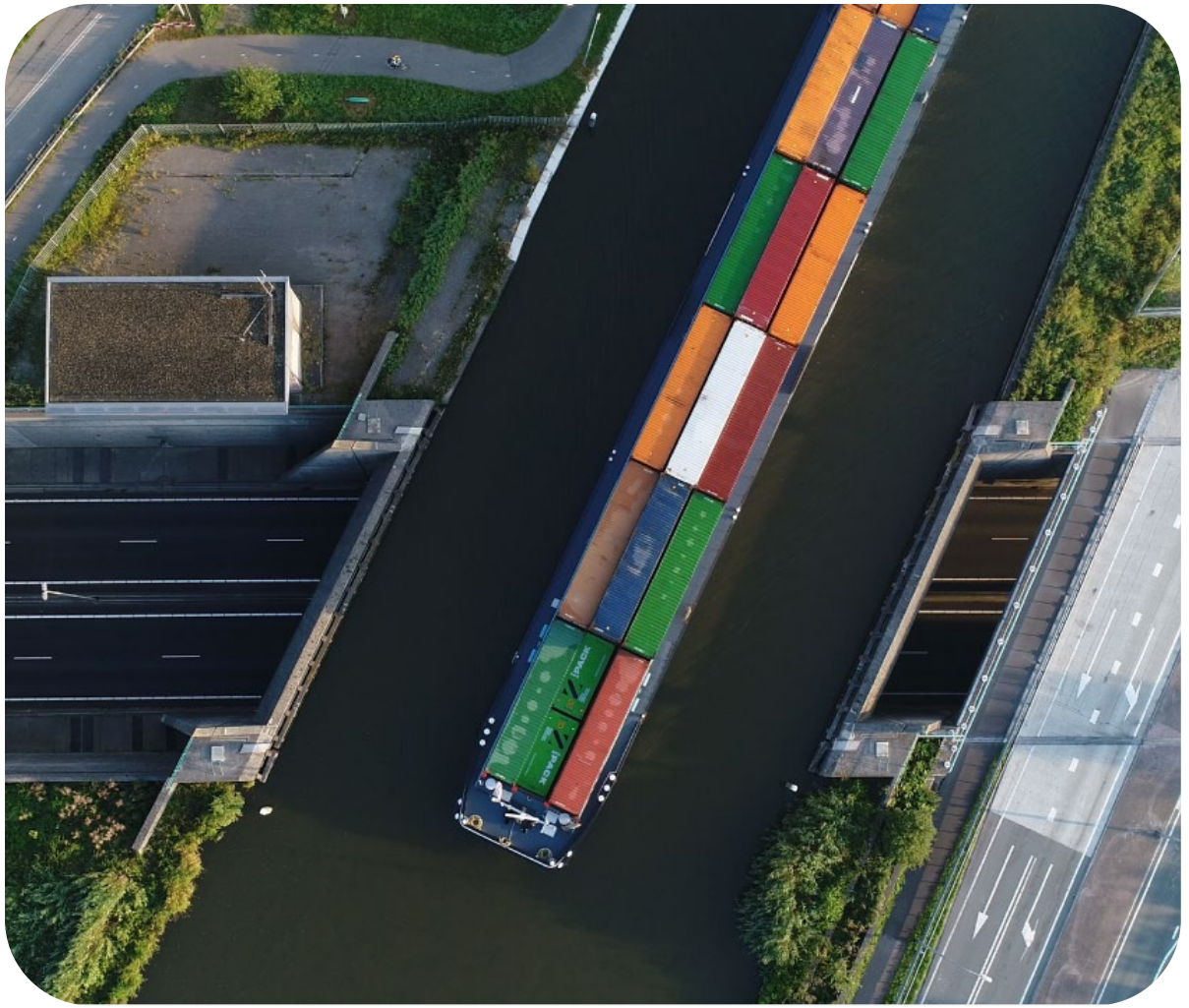
SENSE OF URGENCY

LEGISLATION, REGULATION & GOVERNMENTAL DRIVE

CLOSING FINANCIAL GAP

TECHNOLOGY STANDARDISATION

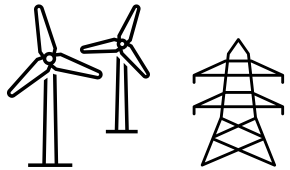
OPERATIONAL EXCELLENCE



Powering clean corridors.

Entire value chain must take responsibility

ZES is making a move and seeking for partnerships











Green power supplier → **ZES Technology** → **Terminal / Service Provider** → **Vessel Owner** → **Freight Owner / Shipper** → **Consumer**



Second customer sailing

Customer traction



Carbon Insetting project

Closing the financial gap



12 vessels received subsidy

Zero-emission subsidy launched



MCS connectors implemented

Setting industry standard

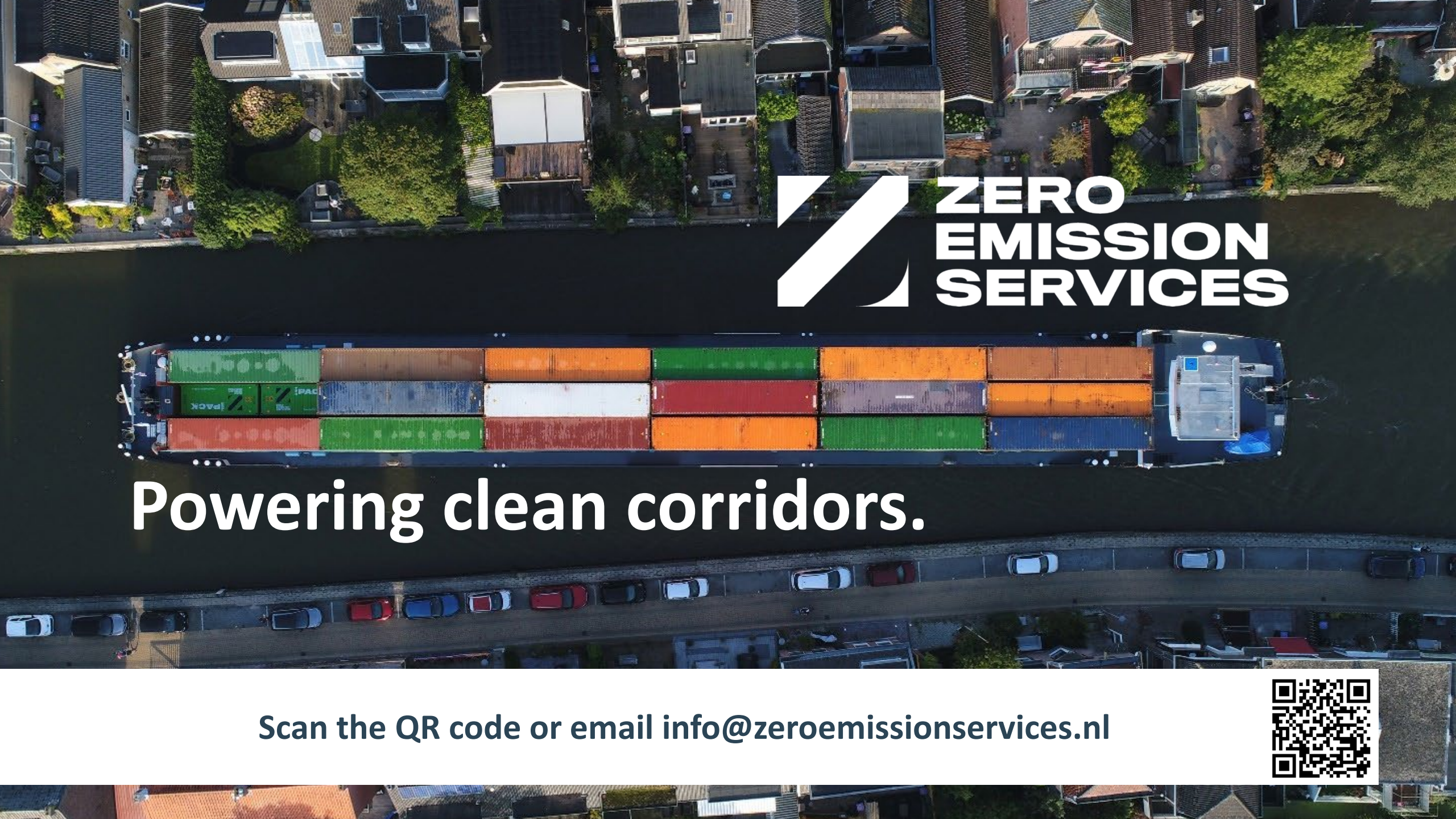


Scaling up network

Securing energy supply

Let’s join forces, we’re sailing this vessel together

Powering clean corridors.



Scan the QR code or email info@zeroemissionservices.nl