

TOWARDS ZERO EMISSION SHIPPING



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INTRODUCTION

1. Port of Rotterdam
2. Why do Ports care?
3. What role can we play?



PORT IN FIGURES

Port of Rotterdam : engine of the economy

- Total port area 12,713 ha (land 7,903 ha, water 4,810 ha)
- Total employment 385,000 people*
- Total added value € 45,6 billion (6.2% GNP)*
- 3,000 companies
- Largest port in Europe, 10th port worldwide
- Throughput 2019: 469,4 mln tons; 14.8 million TEU
- Depth up to 75 ft (= 24 m)
- Visits (2018): 29,491 sea-going vessels
100,000 inland navigation

* source: Erasmus University



Mission:

The Port of Rotterdam Authority creates **economic and social value** by working together with clients and stakeholders on the realisation of **sustainable growth** in Rotterdam's world-class port.



WHY DO PORTS CARE?

MAIN ENVIRONMENTAL CHALLENGES PORT OF ROTTERDAM

- Safety
- Air Quality & Nature
- Climate
- Nuisance
Noise & Odor
- Stakeholder support
Local communities, NGO's,
Industry, ...



CO₂ EMISSIONS TRANSPORT - WORLDWIDE

23%
of global CO₂
emissions



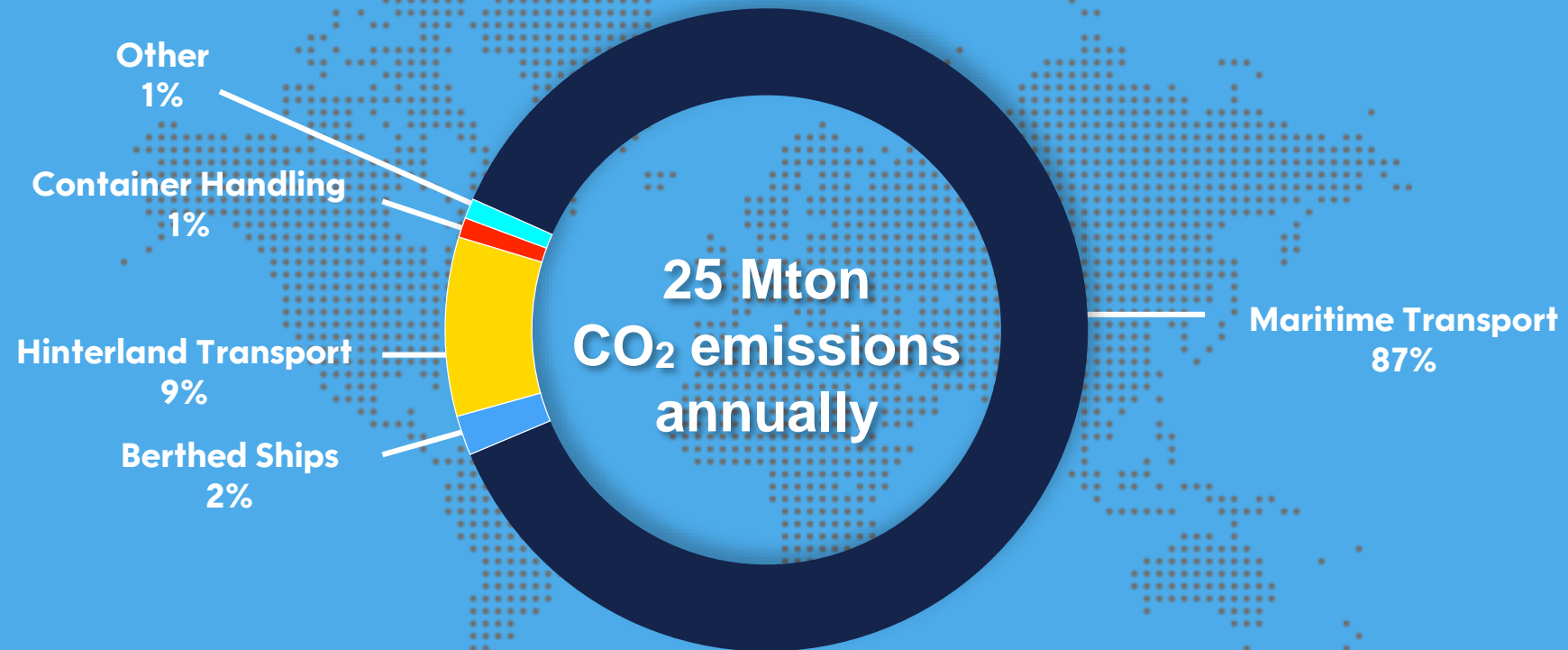
6,9 %
caused by
transport of
goods



2,5%
by deep sea
shipping



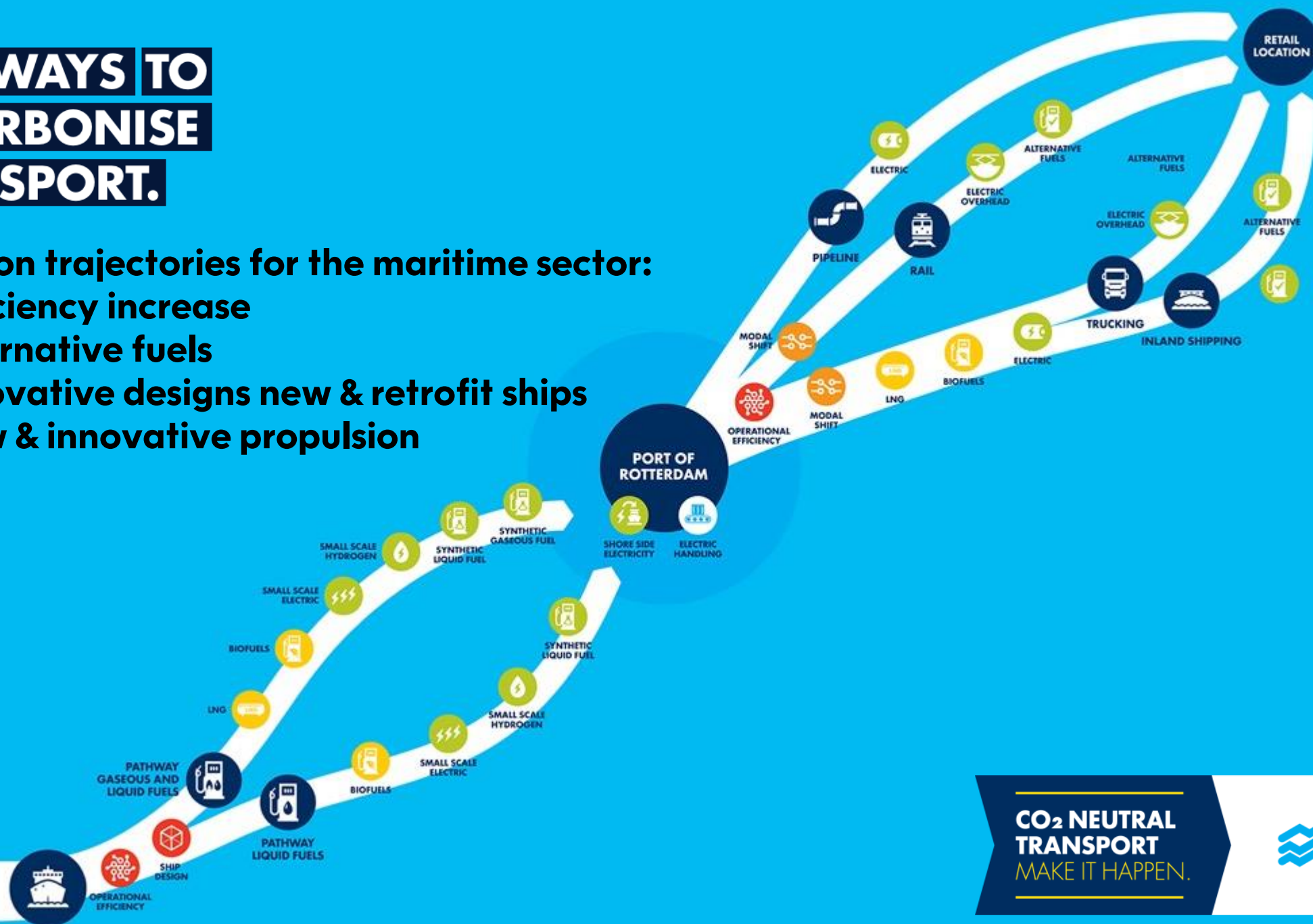
CO₂ EMISSIONS TRANSPORT, ROTTERDAM RELATED



PATHWAYS TO DECARBONISE TRANSPORT.

Transition trajectories for the maritime sector:

1. Efficiency increase
2. Alternative fuels
3. Innovative designs new & retrofit ships
4. New & innovative propulsion



**CO₂ NEUTRAL
TRANSPORT**
MAKE IT HAPPEN.

 **Port of
Rotterdam**

SUSTAINABLE SUPPLY CHAIN: DIGITALISATION

1. Planning: (maritime transport and port operations)
 - PortXchange (seagoing vessels)
 - HaROLD (rail)
 - Nextlogic (barge)
2. Insight:
 - Navigate (logistic chain optimisation)
 - Avanti (loading capacity maximisation)
 - Barge Performance Monitor
3. Data exchange:
 - Portmaster
4. Track & Trace:
 - Ship Tracker
 - Streamline (container bundling & exchange)



SUSTAINABLE SUPPLY CHAIN: FUEL SWITCH

Technological + commercial feasibility:

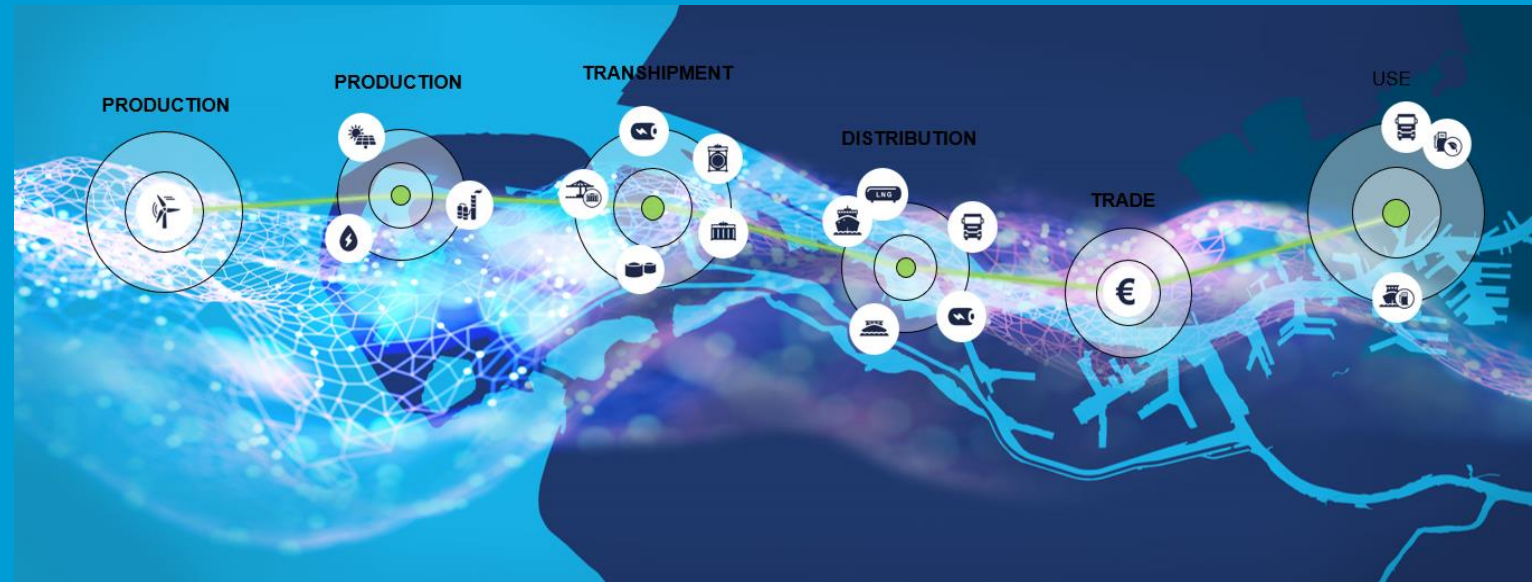
- (Bio)-LNG HUB (bunkering)
- Low carbon trade lane initiative
- Container Energy Storage Systems for inland vessel propulsion (pilot Heineken/CCT vessel)
- Onshore powersupply : e.g. Heerema Shore Power project Calandkanaal
- Agent based modelling of green methanol for short sea vessels

Laws and regulations:

- Initial IMO strategy on reduction GHG emissions from ships
- The Netherlands: Green Deal 2019-2024 for maritime transport
- EU Green Deal on a carbon neutral Europe

Financial incentives:

- Incentive facility of € 5 mln to experiment with low-carbon or zero-carbon fuels for maritime shipping
- Green award/Environmental Ship Index discounts



WORLD PORTS CLIMATE ACTION PROGRAM



Coalition of the willing:

Cooperation to deliver climate action & capture air quality improvement simultaneously , launched September 13, 2018

Starting with: *Antwerp, Hamburg, Barcelona, Long Beach, Los Angeles, Rotterdam, Vancouver*

Later joined by: *Amsterdam, Gothenburg, Le Havre, New York/New Jersey, Yokohama*

WORLD PORTS CLIMATE ACTION PROGRAM

Declaration: Action Program

1. Increase efficiency of supply chains using digital tools
2. Advance common and ambitious (public) policy approaches on emission reductions within larger geographical areas
3. Accelerate development of in-port renewable power-2-ship solutions or other zero emission solutions
4. Accelerate the development of commercially viable sustainable low-carbon fuels for maritime transport and infrastructure for electrification of ship propulsion systems
5. Accelerate efforts to fully decarbonize cargo-handling facilities in our ports

Call to shipping industry:

- Join us in our commitment
- Work with the undersigned ports to ensure action that delivers results

Call to regulators:

- Implement policies for greenhouse gas emission pricing
- Provide financial support for R&D and pilot projects
- Support the World Ports Climate Action Program

CONCLUDING REMARKS

- The shipping industry efforts and achievements are recognized
- The challenge is clear
- Acceleration is vital

Industries can change rapidly:

- Manure crisis London 1894 & conference 1898 in New York City



Paris – 1898

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Paris – 1914 (16 years later!)

“UPS introduces Electric Delivery Fleet in London”

“Hydrogen fuel cell trains: a viable alternative to electrification?”

“BREYTNER orders 1st Tesla Semi truck for the Netherlands”

“Heineken launches Biofuel bunker pilot with Nedcargo and GoodFuels ”

“Exxon Makes a Biofuel Breakthrough”

“Port-Liner to Launch All-Electric ‘Tesla’ Ships in Fall 2018”

“Tony’s Chocolonely joins GoodShipping to enable carbon-neutral shipping to US”

“China launched the world’s first electric cargo ship”

A large container ship, the MSC Mirjam, is docked at a port. The ship is covered in colorful shipping containers. In the foreground, a Dutch flag (red, white, and blue horizontal stripes) is flying from a pole on the right. The water is blue with white foam from a wake in the foreground. The sky is clear and blue.

CO₂ NEUTRAL
(TRANS)PORT.
MAKE IT HAPPEN.