

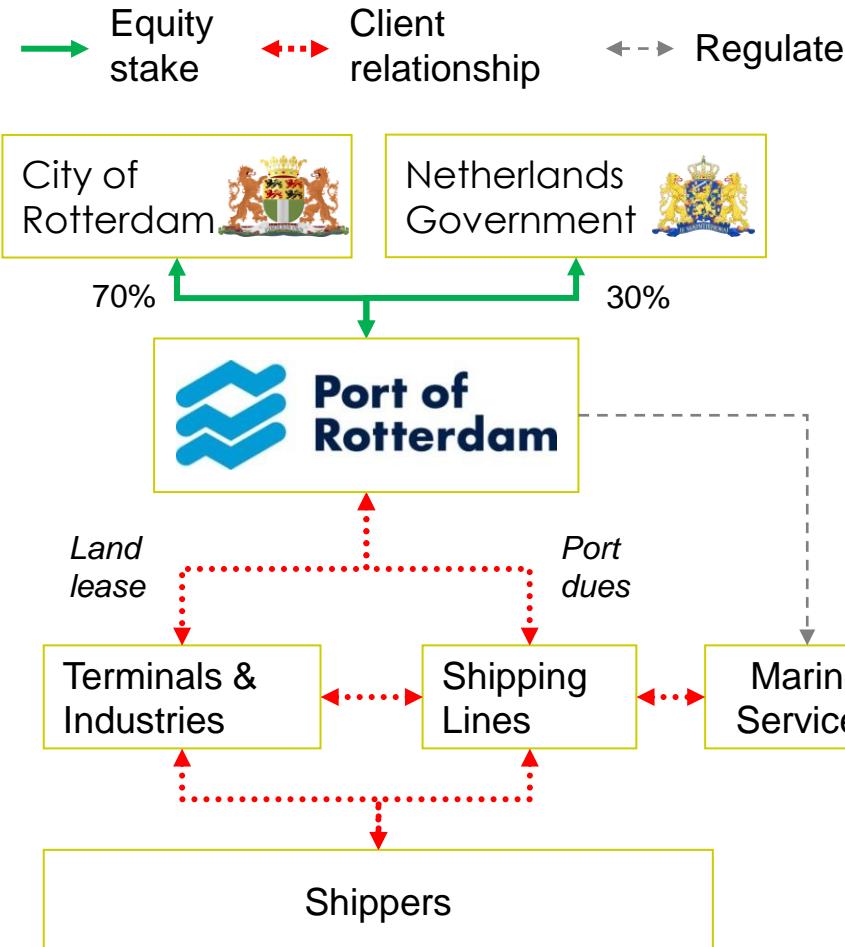
PORt OF ROTTERDAM IN THE ENERGY TRANSITION

PRESENTATION FOR METI EVENT



Martijn Coopman, Carlos Zepeda, Andre Toet.
14 Feb 2022

Founded 90 years ago, PoR is a publicly-owned business driven port development company

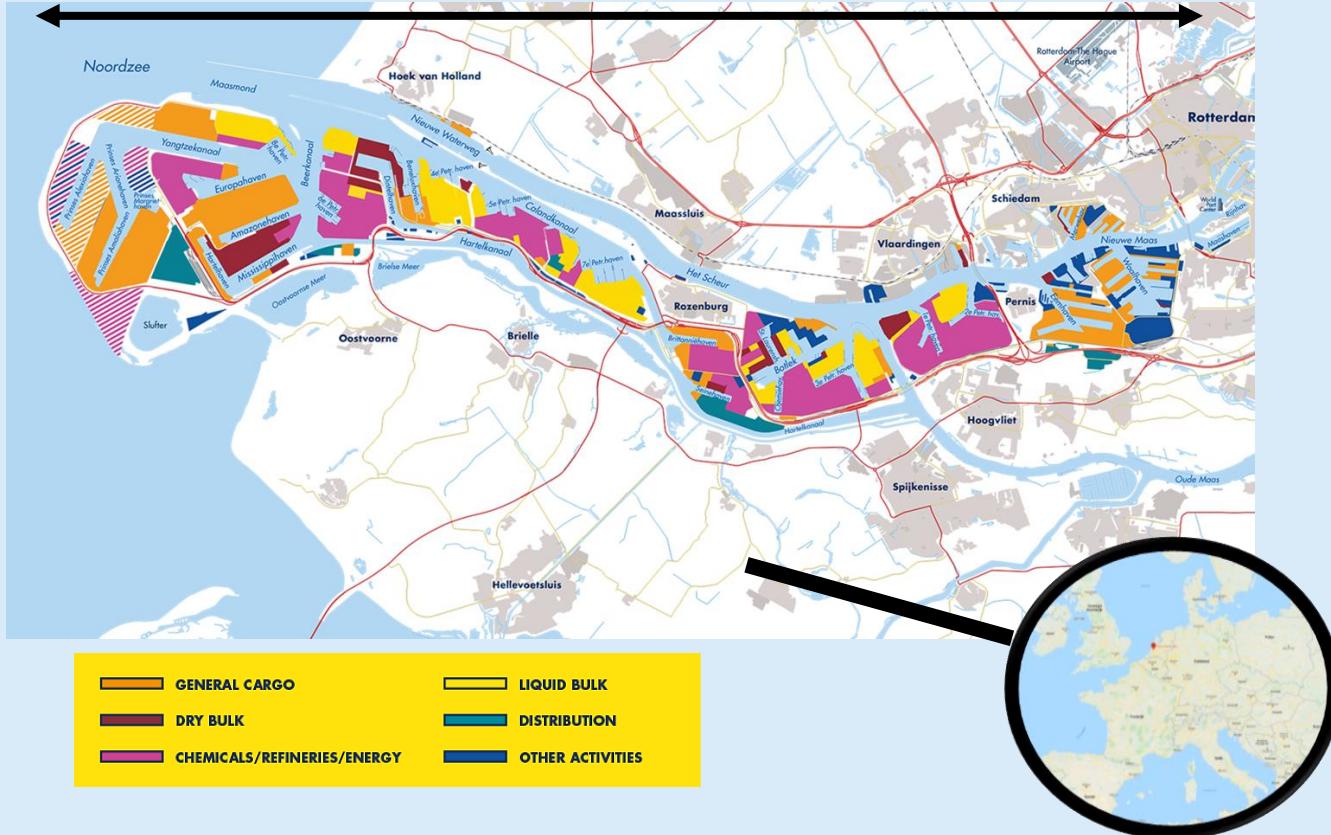


Mission:

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.

The Port of Rotterdam is the Energy hub of Europe

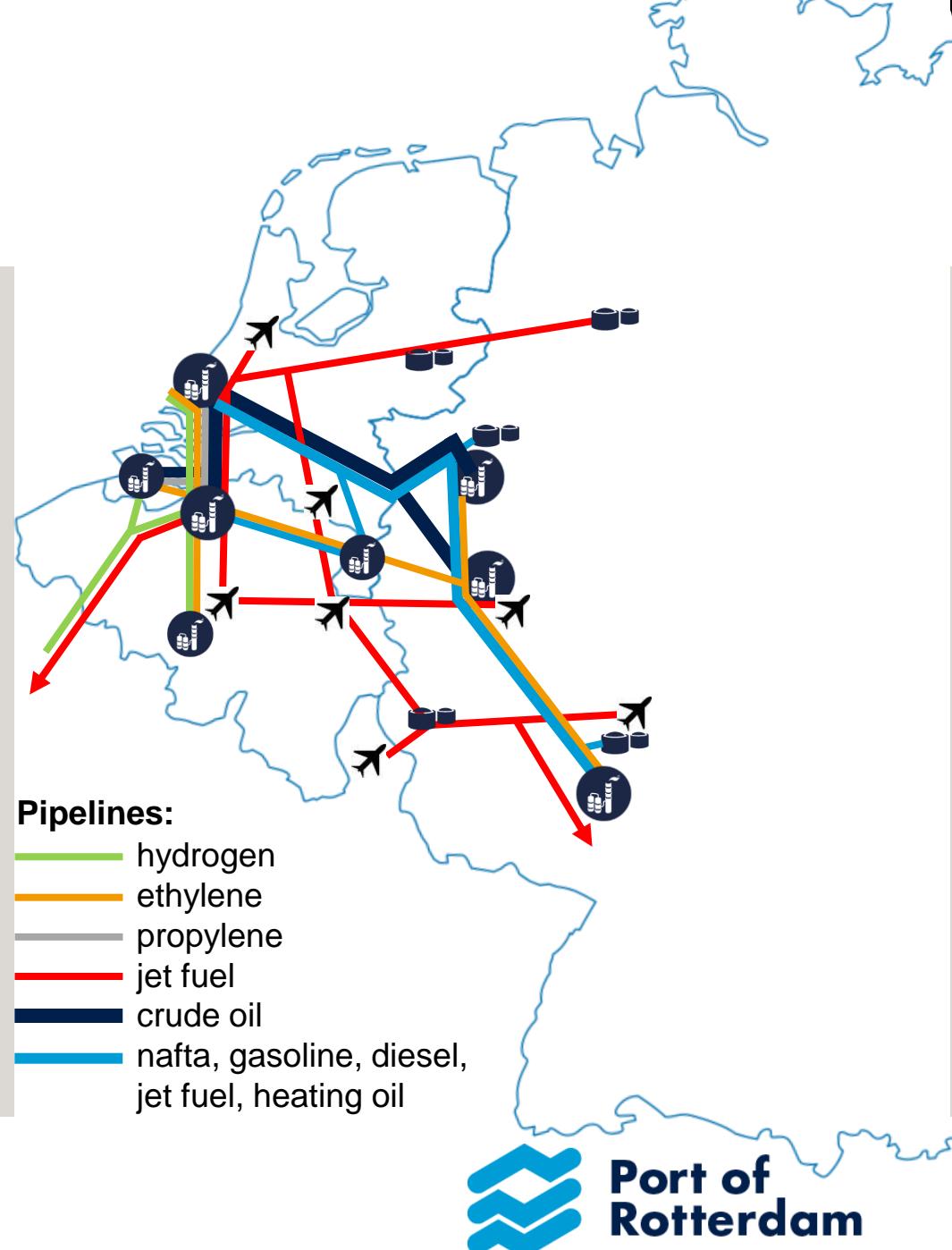
Over 25 miles / 40 km



- At this time 13% of the total EU energy-consumption passes through Rotterdam
- Largest port in Europe, 10th port worldwide
- Total employment 385,000 people*
- Total added value € 45,6 billion (6.2% GNP)*
- Visits (2019):
 - 29,491 sea-going vessels
 - 107,000 inland navigation
- 3.000 companies
- Throughput (2019): 469.4 mln tons; 148 million TEU
 - 45% Liquid bulk
 - 32% containers
 - 17% dry bulk
 - 6% Breakbulk

Europe's Industrial Cluster

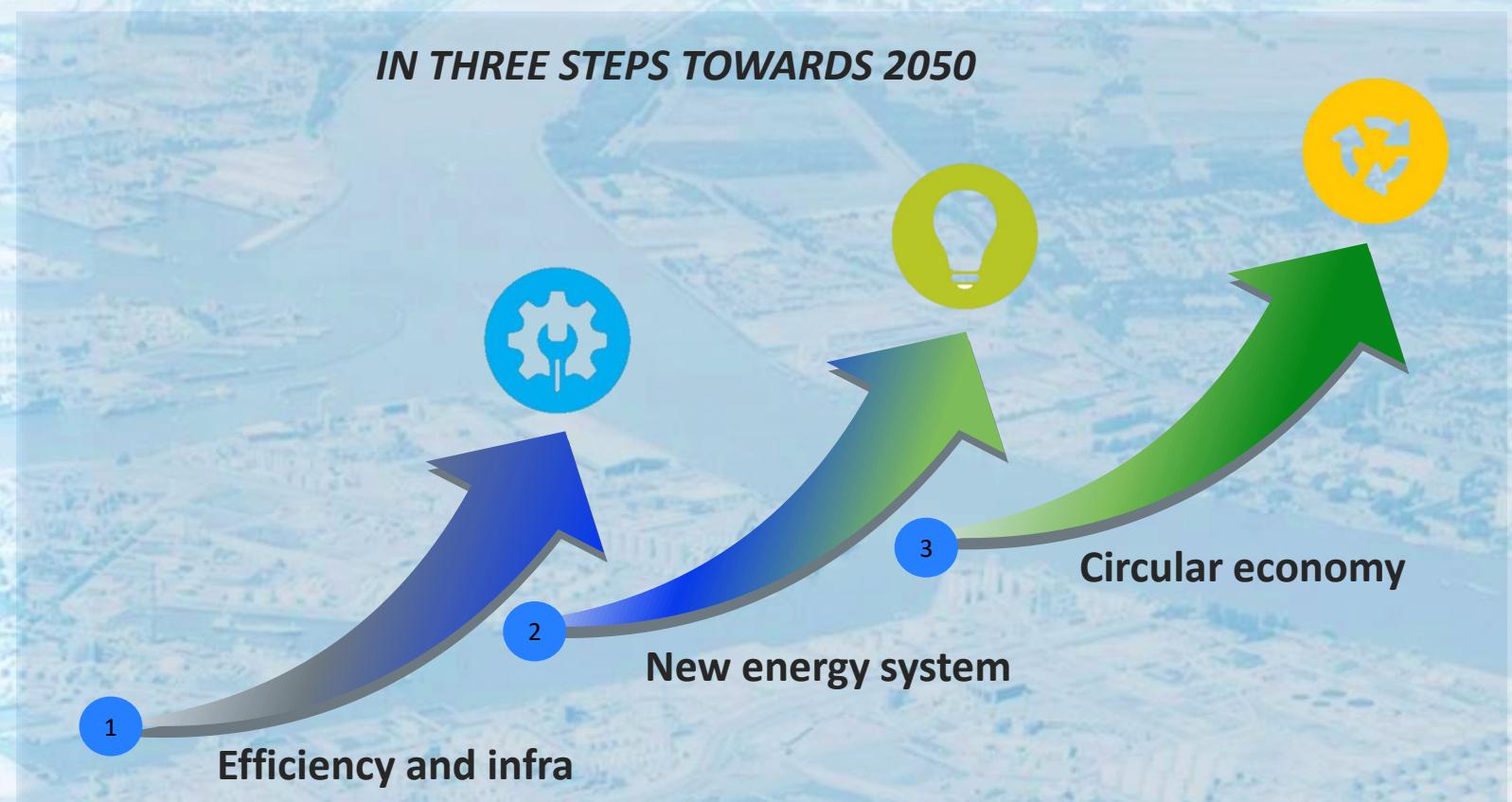
- ❖ Germany, Netherlands and Belgium:
 - 30% of EU oil refining
 - 45% of EU chemical sales
- ❖ Driven by ARA-Rhine-Ruhr Cluster:
deep sea ports, river delta, pipeline systems
- ❖ Strengthened by production integration between
refineries and chemical industry
- ❖ Empowered by highly qualified labour force,
education and R&D, based on more than a century
of regional development in oil and chemicals



Energy transition in the Port of Rotterdam

AND-AND APPROACH

- And help existing industry and logistics cluster to adjust to future climate demands
- And attract new sustainable industries
- In doing so, protect and enhance economic value
- Carve out an enhanced competitive position



INVESTING IN A FUTURE-PROOF NETHERLANDS

Infrastructure is crucial for the transition.

The Port of Rotterdam creates:

- 385,000 jobs in the Netherlands
- 6.2% GNP

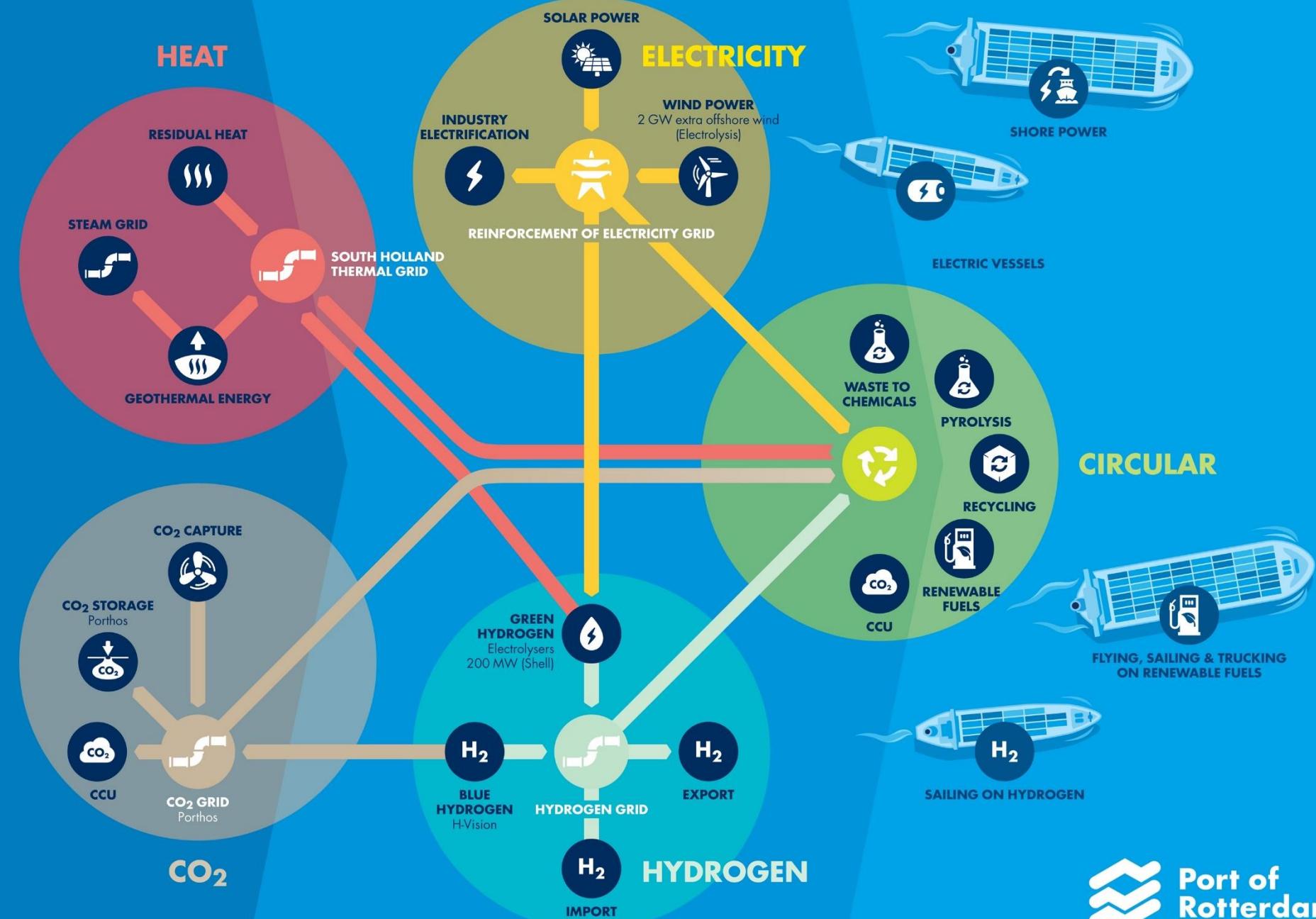
Public investments in infrastructure (€1–1.5 billion) lead to multiple private investments (€ 4–5 billion)

Current projects cause:

- 20–25% of the Dutch CO₂-reduction ambition (2030)
- Improvement air quality

Strategy is in line with

- Rotterdam Climate Agreement
- Dutch Climate Agreement
- EU Green Deal

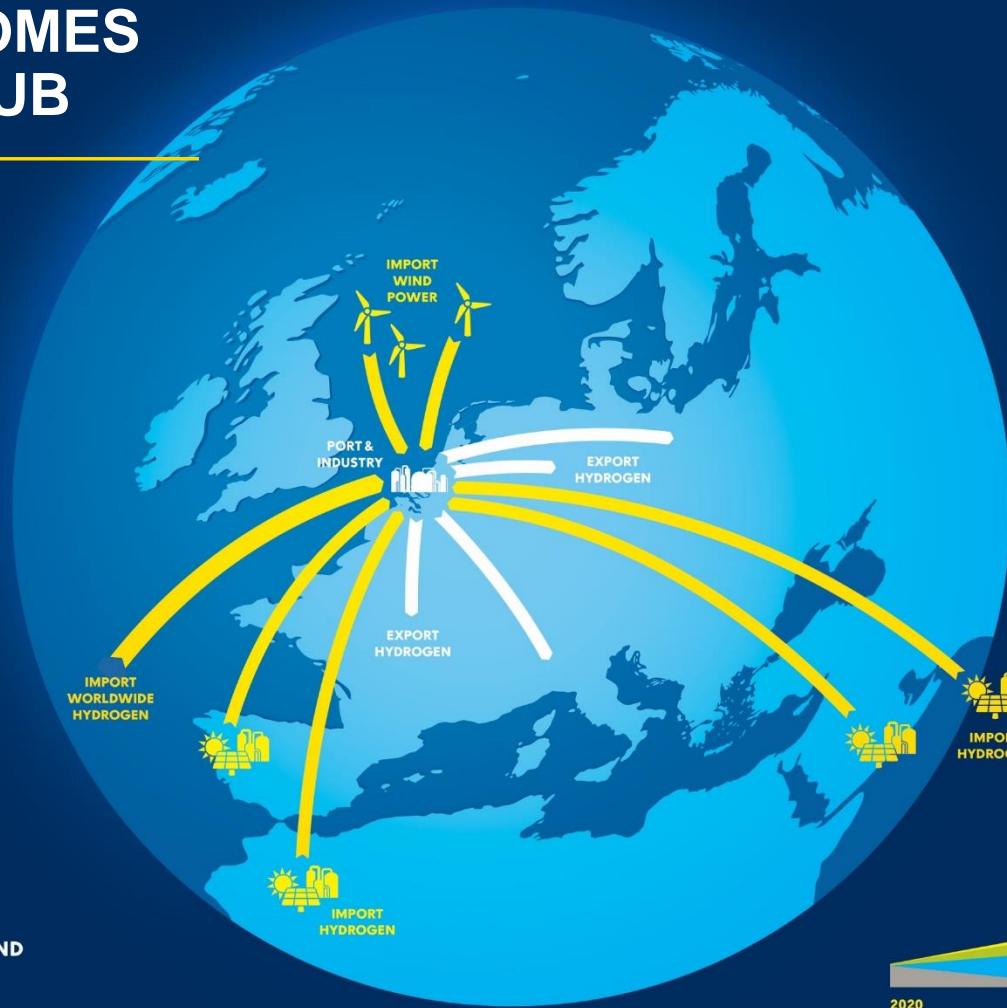




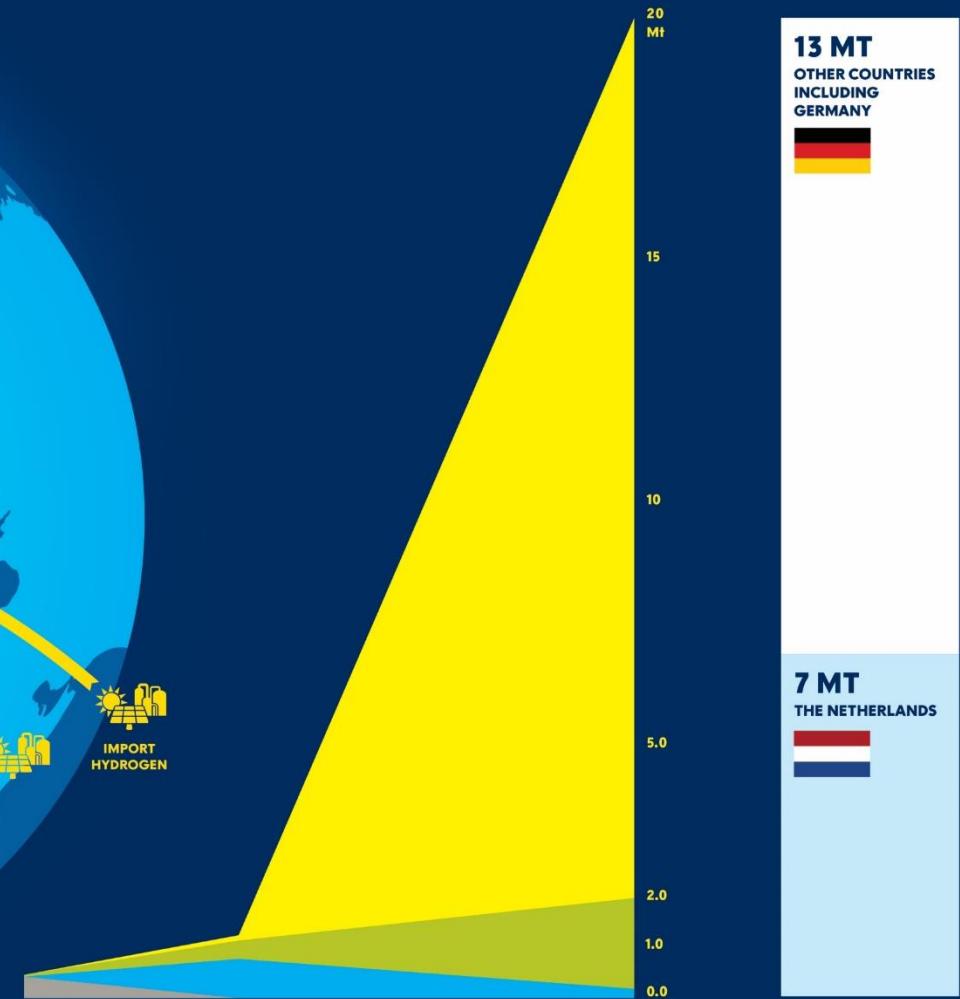
ROTTERDAM BECOMES KEY HYDROGEN HUB



Connection with national H₂ grid,
Chemelot and North Rhine-Westphalia (NRW).



Strong growth in hydrogen flow
through Rotterdam due to imports.

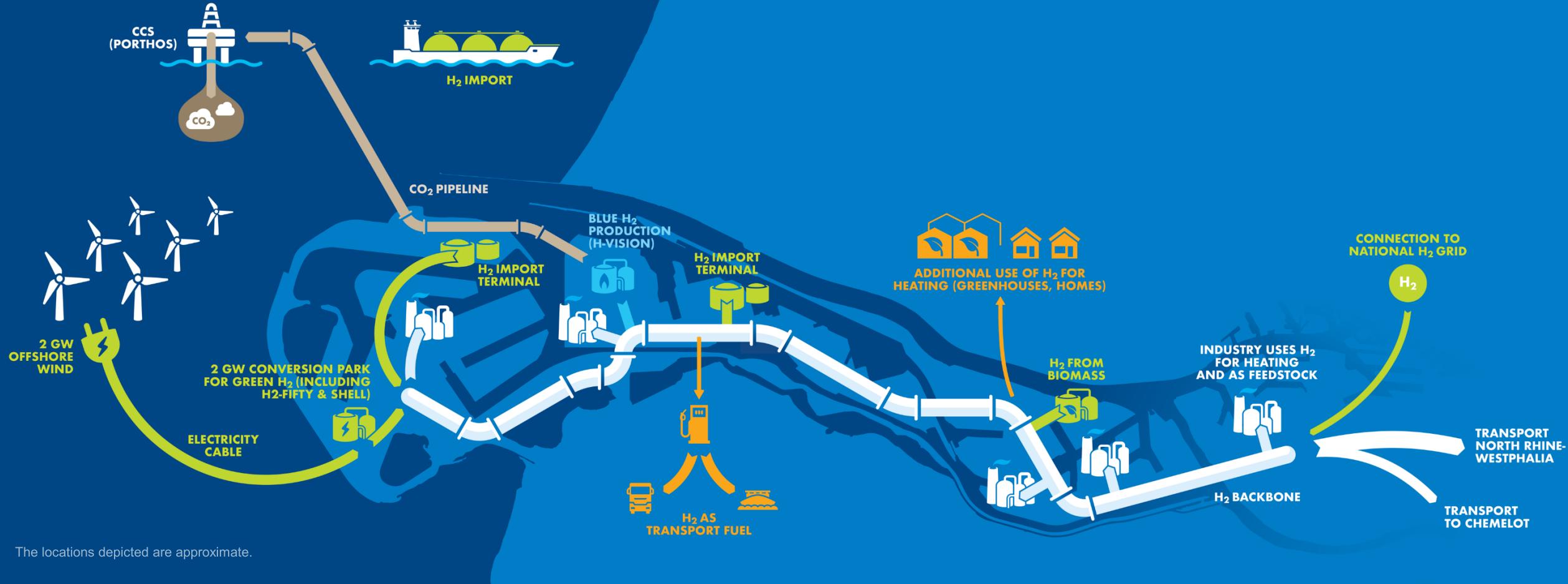


Grey hydrogen
Blue hydrogen

Green hydrogen
Imported hydrogen

Estimate: Distribution of 20 MT
hydrogen per country.

HYDROGEN ECONOMY IN ROTTERDAM STARTS WITH BACKBONE



FIRST PROJECTS OPERATIONAL 2023/4

2023/4

Shell 200 MW
electrolyser
operational on
conversion park

2024

H₂ backbone
(HyTransPort.RTM)
operational

Green ammonia
imports start

2025

Road transport:
1000 H₂ powered
trucks of which
500 in Rotterdam

LOHC import at
industry scale

H₂-Fifty 250 MW
electrolyser
operational
(BP, Nobian)

Uniper 100 MW
electrolyser
operational
(towards 500 MW
in 2030)

2026

RH₂INE:
12 inland barges
on H₂ operational

H-vision
operational
(blue H₂)

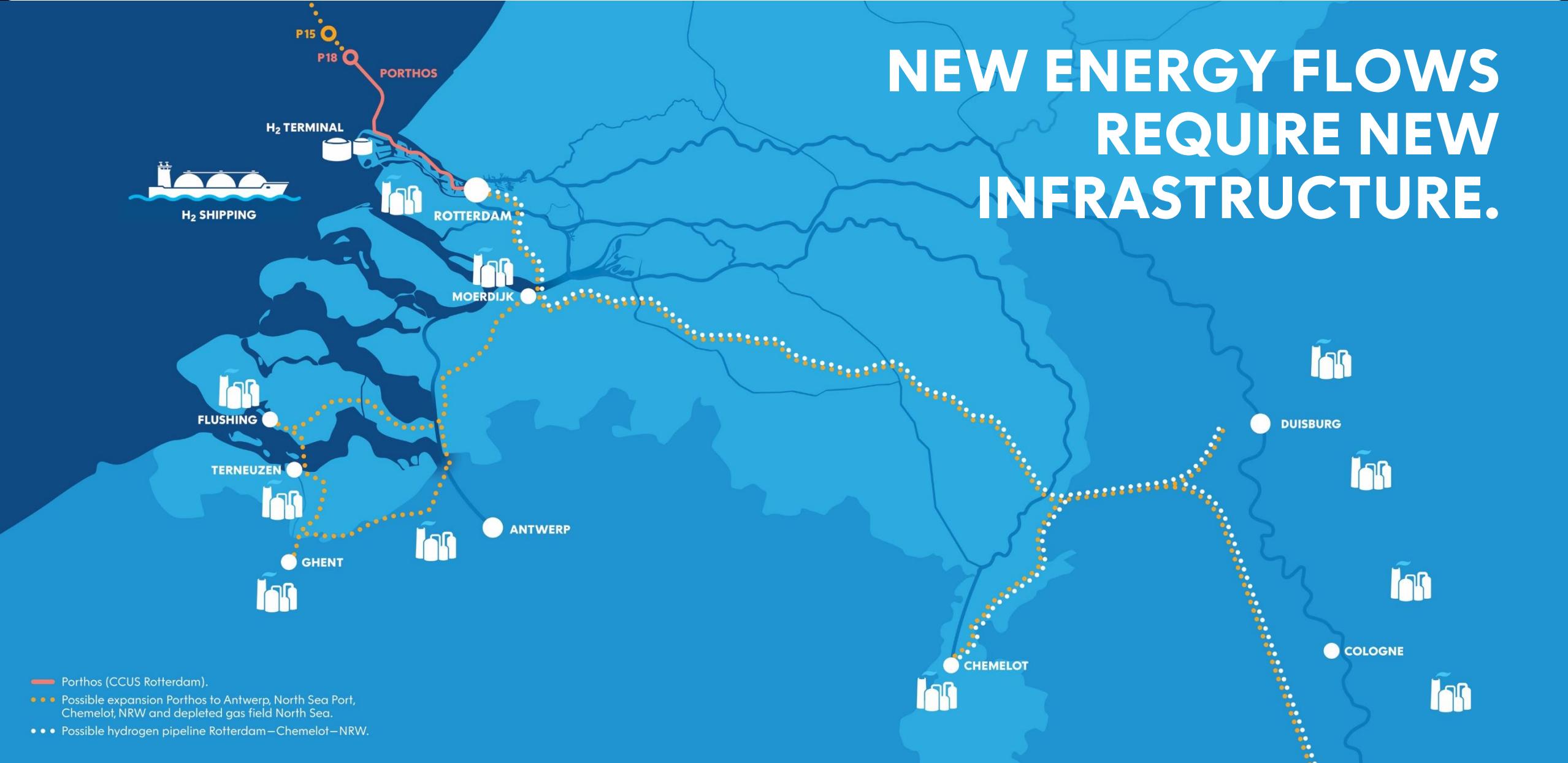
2029

LH₂ terminal
operational

2030

2 – 2,5 GW
electrolysers
operationeel

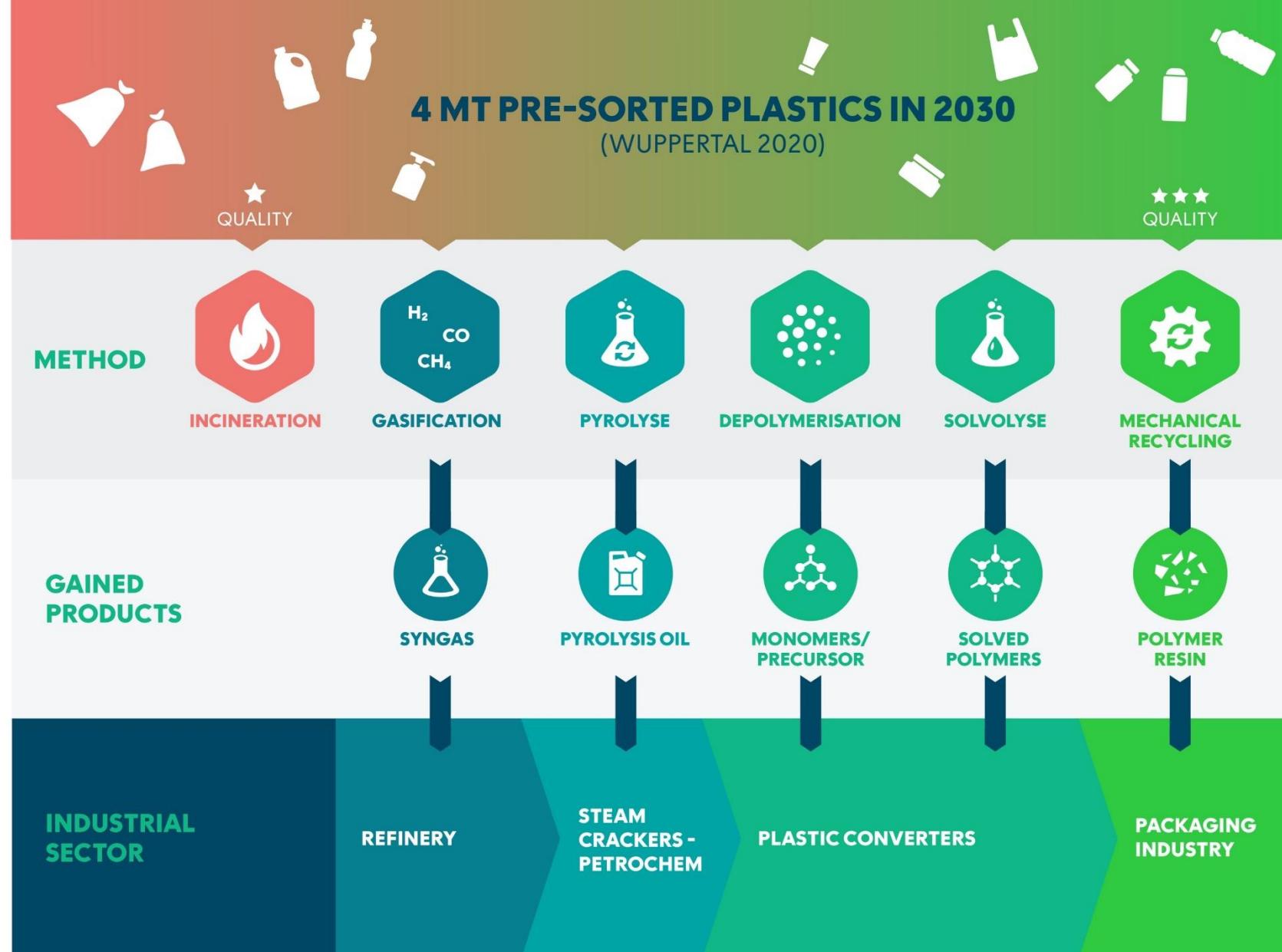
NEW ENERGY FLOWS REQUIRE NEW INFRASTRUCTURE.



- Porthos (CCUS Rotterdam).
- Possible expansion Porthos to Antwerp, North Sea Port, Chemelot, NRW and depleted gas field North Sea.
- Possible hydrogen pipeline Rotterdam – Chemelot – NRW.

Medium term goals 2030 for setting up new value chain

- Collecting & Sorting 4 MT pre-sorted plastics
- Creating circular carbon hub with 10 strong demonstrators for advanced recycling
- Focus on value chain Circular Plastic



Opportunities & how to connect

Opportunities

- LOHC handling solutions
- Technological solutions for processing waste products into energy or plastics
- Investment in waste-to-energy, waste-to-chemicals, or biofuel facilities

How to connect?

Tech
solutions

Contact one of our many clients and partners:



...and others – PoR can facilitate

Port
facilities

Interested to develop a facility in our port?
Then contact PoR directly

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