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# IWT Cargo flows of the future

trends and main identification of possible future cargo  
types

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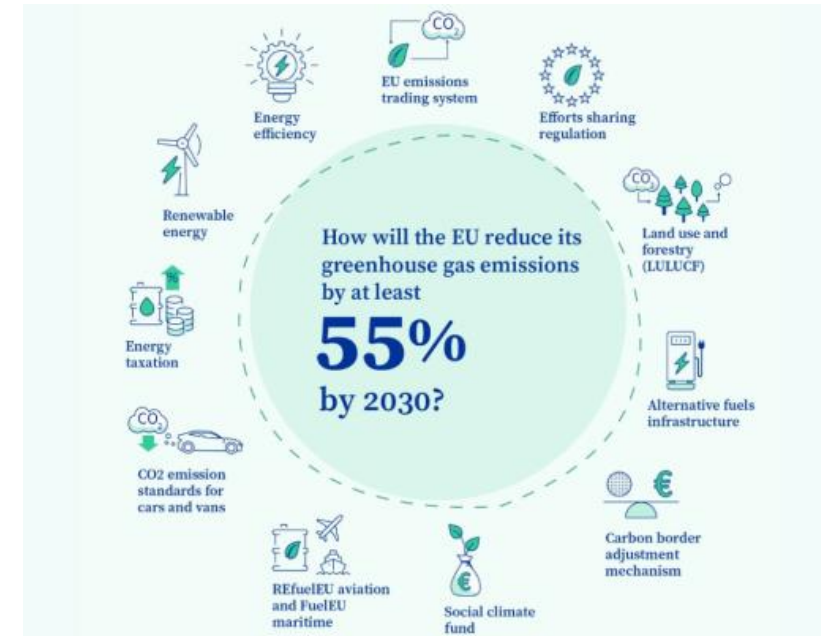
# Outline

- Background and main trends
- Dry bulk cargo flows
- Liquid bulk cargo flows
- Overarching insights

# Background and main trends

# Background

## European Green Deal & Fit for 55



This leads to climate targets, which also impacts certain typical IWT cargo types, and modal shift ambitions

→ What are cargo flows for the future for IWT?

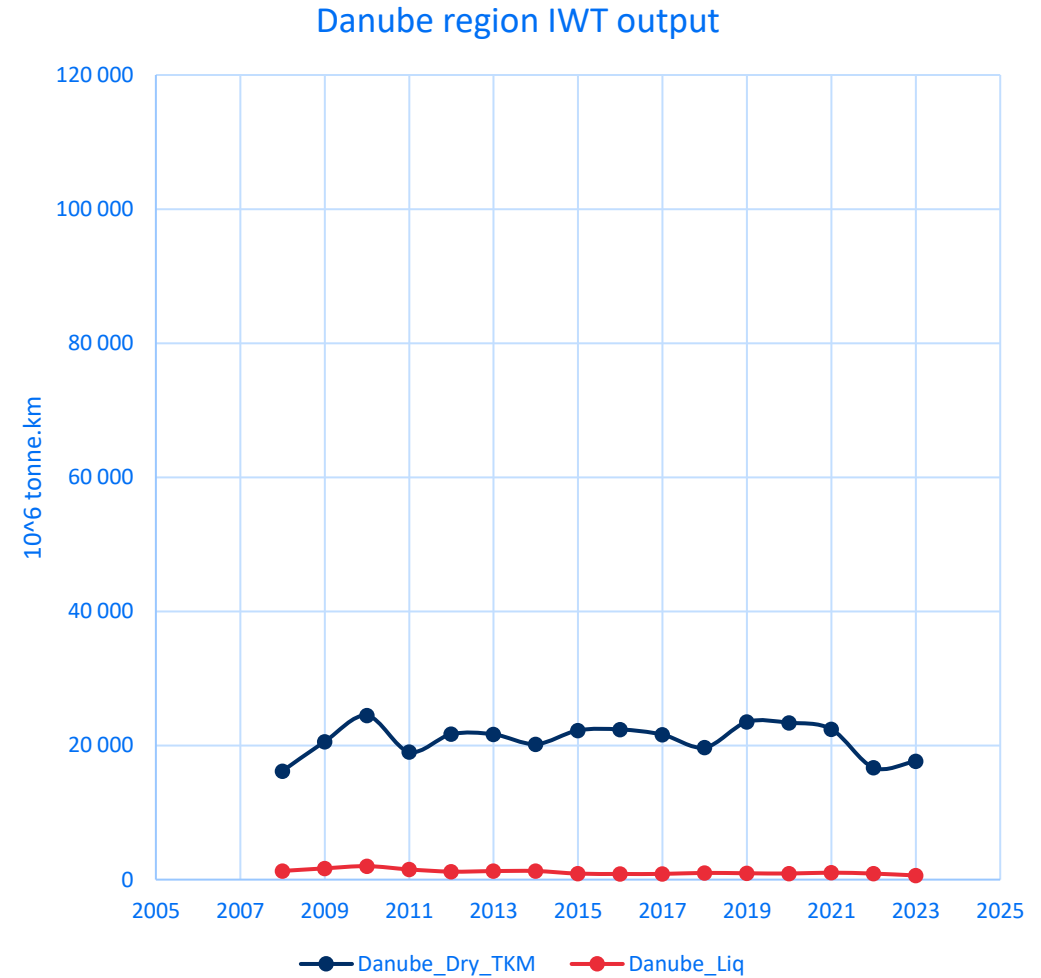
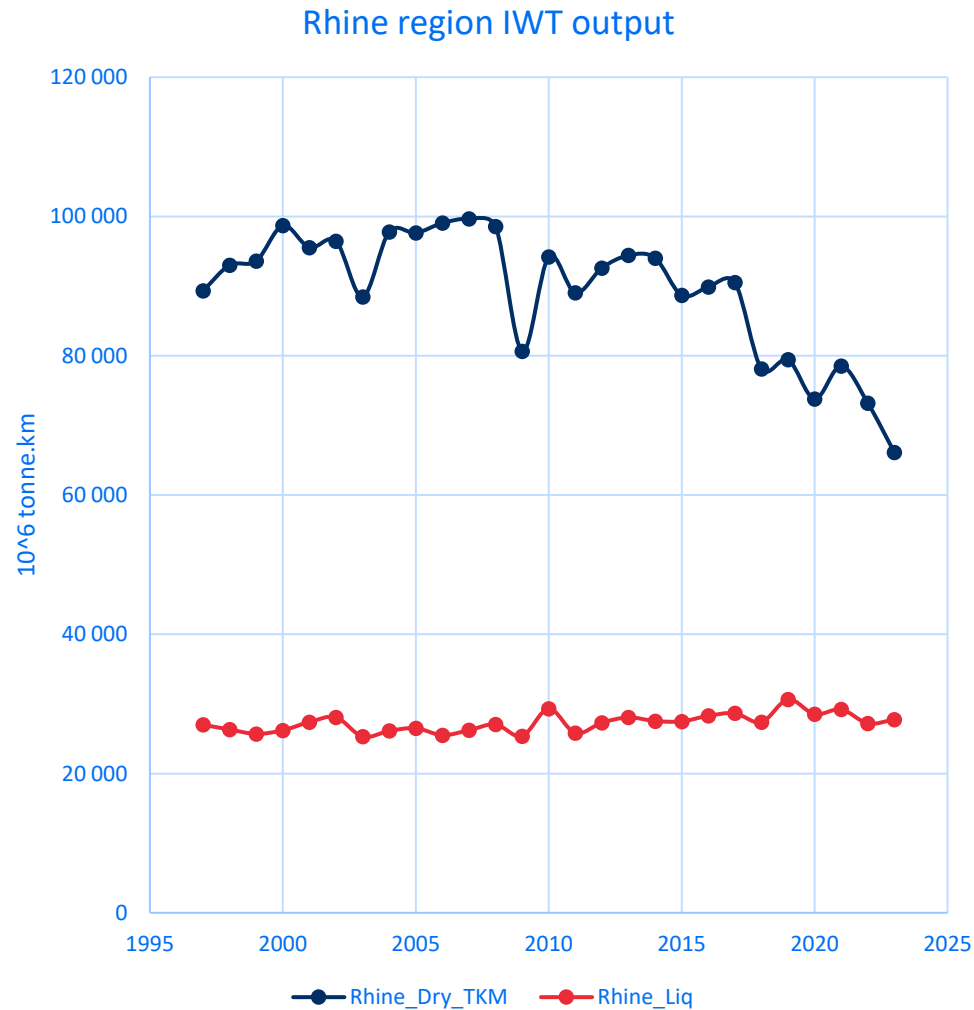
# Traditional IWT markets

Classily strong IWT benefits:

1. Large volumes
  2. Low transport cost
- coal, iron ore and liquids from main seaports to their hinterlands



# Structural transition in inland navigation (1)



Source: EUROSTAT (2026)

# Structural transition in inland navigation (2)

## Traditional bulk cargo flows are declining

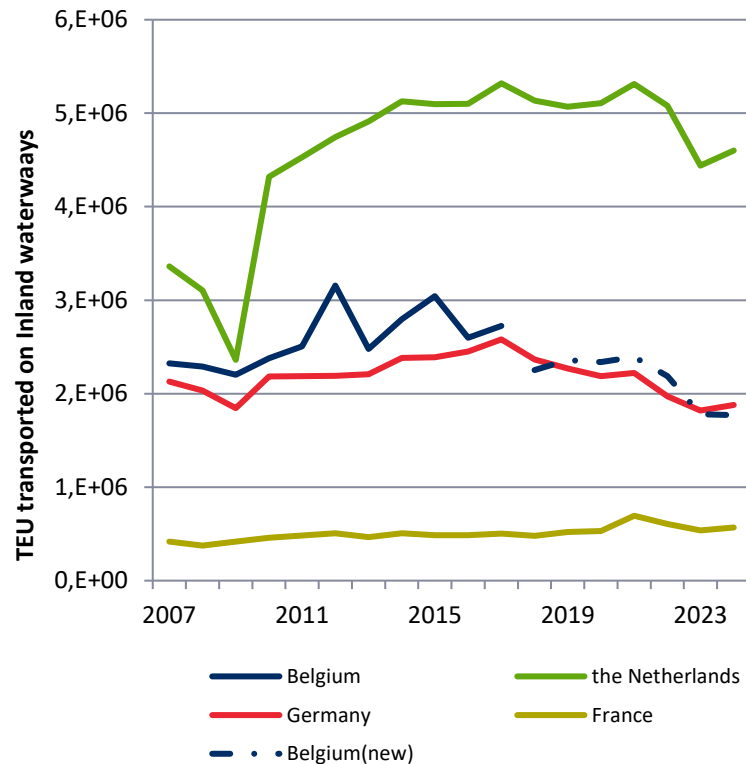
1. Dry bulk
  - Coal
2. Liquid bulk
  - fossil fuels
  - chemical products

## Main causes:

- energy transition → “normally” less demand for coal and fossil fuel
- greening of the economy → higher energy cost → higher uncertainty → chemical industry closures
- geopolitical problems (→ uncertainty)

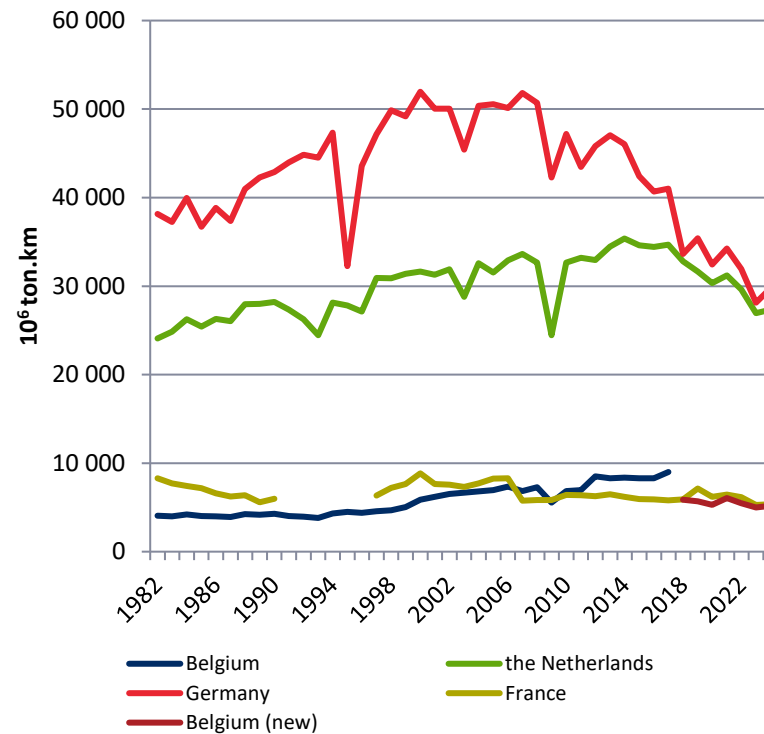
# Details Western Europe

## Containers



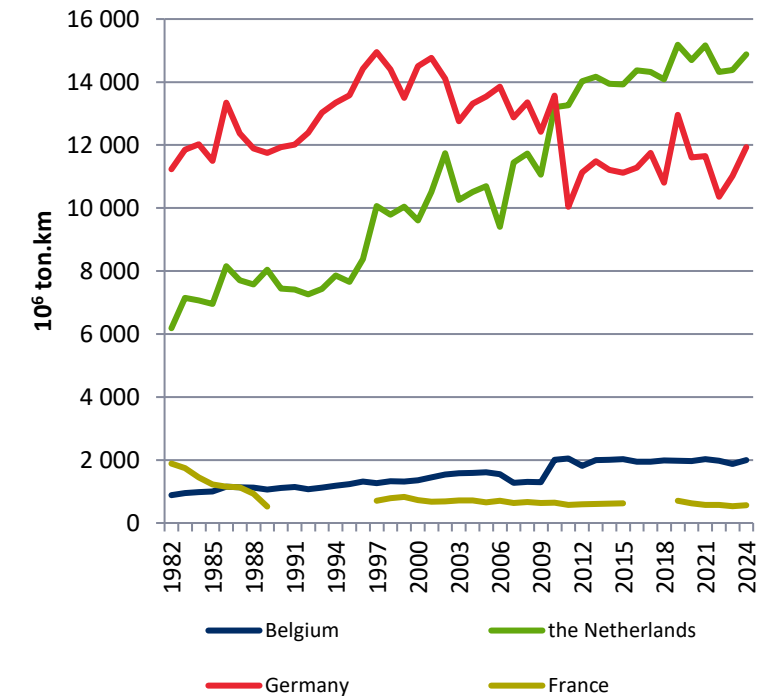
Decreasing trend from 2020,  
small recovery in 2024

## Dry bulk



Decreasing trend from 2007 in  
GER, and from 2015 in NL

## Liquid bulk



Decreasing trend from 2009  
in GER, and increasing trend  
in NL (ARA traffic)

# Dry cargo flows

based on:

master thesis Gilles Huyghe Uantwerpen 2026

# Dry bulk market: Overview

| Cargo category<br>(million tonnes)      | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | Evolution 2019–<br>2024 |
|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------------------------|
| Metal ores and<br>quarry products       | 155.5 | 148.6 | 150.7 | 134.4 | 131.0 | 127.4 | -18.1%                  |
| Agricultural<br>products                | 38.5  | 39.5  | 38.6  | 37.6  | 40.9  | 38.7  | +0.6%                   |
| Food products and<br>beverages          | 20.7  | 20.7  | 20.0  | 19.7  | 19.7  | 21.2  | +2.5%                   |
| Metals and metal<br>products            | 20.7  | 18.6  | 23.9  | 22.5  | 20.2  | 20.0  | -3.4%                   |
| Coal and lignite                        | 29.5  | 21.9  | 29.2  | 31.9  | 24.2  | 19.3  | -34.6%                  |
| Secondary raw<br>materials and<br>waste | 13.3  | 14.3  | 14.1  | 12.3  | 12.7  | 14.2  | +6.3%                   |

Source: Eurostat (2025), Eurostat (iww\_go\_atygo)

# Dry bulk market: future cargo flows (1)

## Reefer Containers

**Type of cargo:** Frozen products, Vegetables, Potato products

**Conditions:** Sufficient cargo volume, Cold chain infrastructure & Reefer infrastructure, Reliable planning

**Conclusion:** Promising niche Highly dependent on organization and operational reliability



## Agribulk - Rice

**Characteristics:** Stable volumes, recurring cargo flow, existing logistics chains

**Limitations/opportunities:** Smaller vessels, Infrastructure constraints (storage space needed)

**Conclusion:** Not a major growth market, but a stable structural niche



# Dry bulk market: future cargo flows (2)

## Circular Flows

- Construction material

Type of cargo: Concrete rubble, Asphalt granulates, Sand fractions, Recycled materials

Key Drivers: Circular economy, Urban construction logistics, Sustainability objectives

- Regular waste material

Type of cargo: Scrape steel, Biomass and Organic Waste

Key Drivers: Circular economy, Sustainability objectives and it are the reverse streams of the major cargo types (argo, construction, and steel)



The future potential of dry cargo in inland navigation will likely not lie in one dominant new cargo flow, but rather in a more differentiated mix of specialized and context-dependent flows.

These flows are only promising when they:

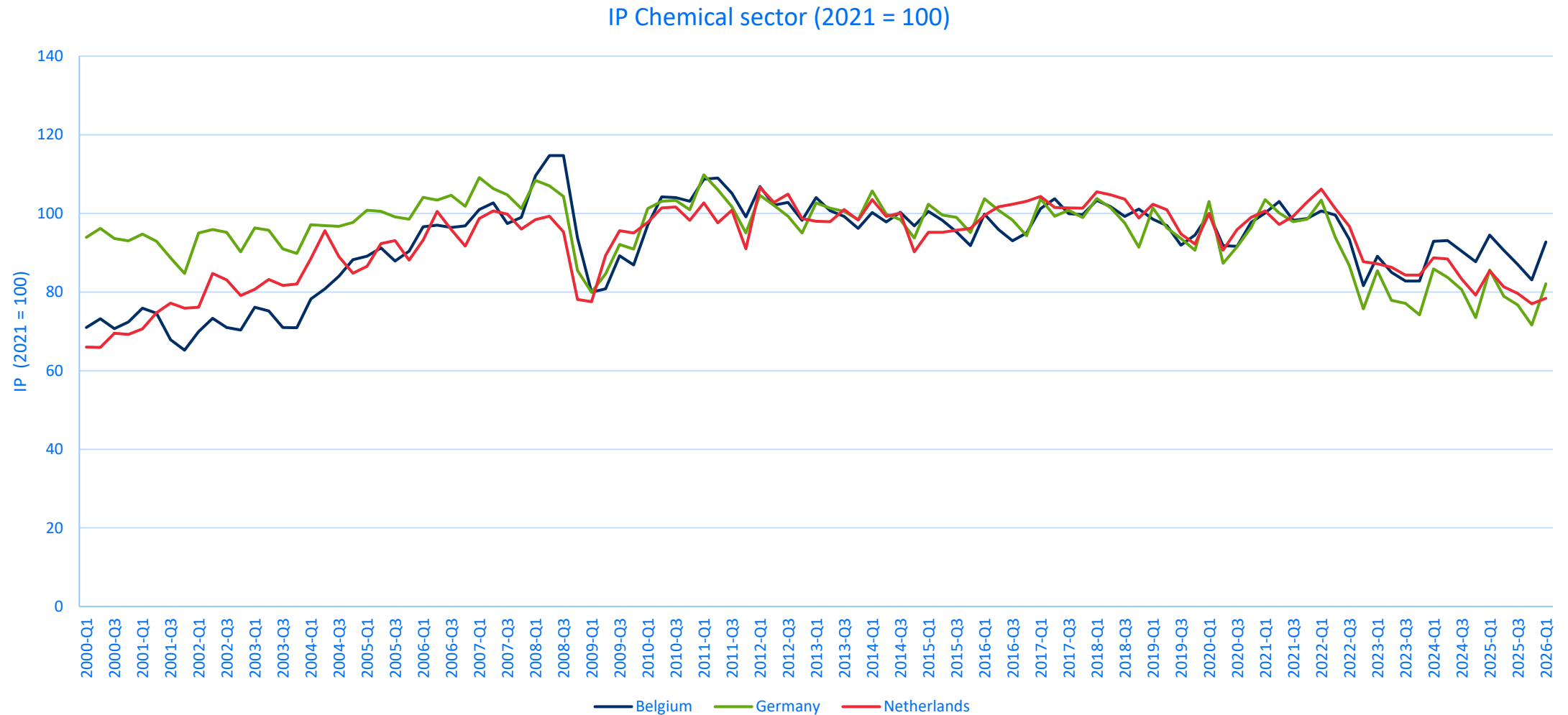
- are sufficiently scalable,
- are bundleable, and predictable,
- can rely on a logistics chain that is organized in a sufficiently robust manner.

# Liquid cargo flows

based on:

master thesis Sarah Glorieux Uantwerpen 2026 and  
Floris de Vos TUDelft 2025

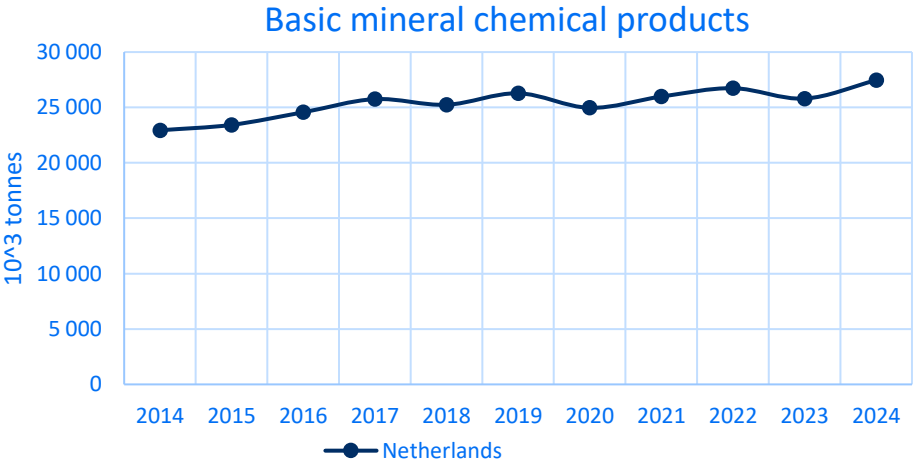
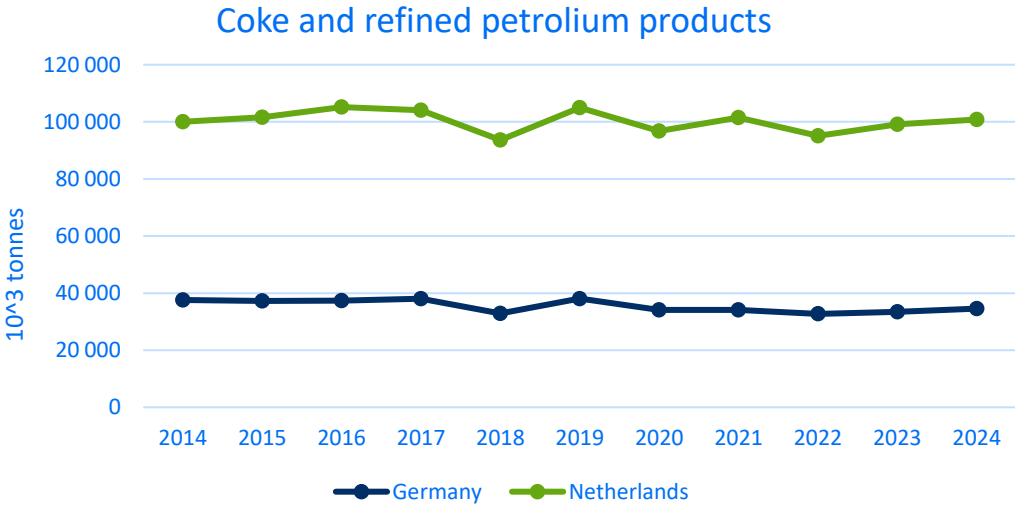
# Liquid bulk market: Overview (1)



Source: Eurostat (2026)

# Liquid bulk market: Overview (2)

## Liquid cargoes transported via IWT



| Cargo category (million tonnes)     | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | Evolution 2019–2024 |
|-------------------------------------|------|------|------|------|------|------|---------------------|
| Coke and refined petroleum products | 78.0 | 71.8 | 74.5 | 71.1 | 71.9 | 76.5 | -2.0%               |
| Chemical products                   | 54.8 | 54.1 | 56.0 | 55.4 | 51.2 | 54.8 | 0.0%                |

Source: Eurostat (2026)

# Liquid bulk market: future cargo flows (1)

## Global trends:

### Phase-out of fossil energy flows

- **Under pressure:**
  - Oil products
  - Traditional fuels
  - Parts of the chemical sector
- **Drivers:**
  - Renewable energy
  - Geopolitical tensions
  - Pipelines
  - Declining European chemical production

**Decline not yet noticeable in the observed data**

# Liquid bulk market: future cargo flows (2)

## Future possible fuels flows

- **LNG:** Transition fuel until approximately 2030
- **Methanol:** Important candidate from 2030 onwards
- **Hydrogen / Ammonia:** Potential exists, but major uncertainties remain

## Carbon transport

- **CO<sub>2</sub>:** IWT can serve a transport mode for the transport of captured CO<sub>2</sub>, potential competition of pipelines

## Conclusion

- The future energy mix remains uncertain. There is no clear dominant successor identified.

## Chemicals and Energy Remain Important

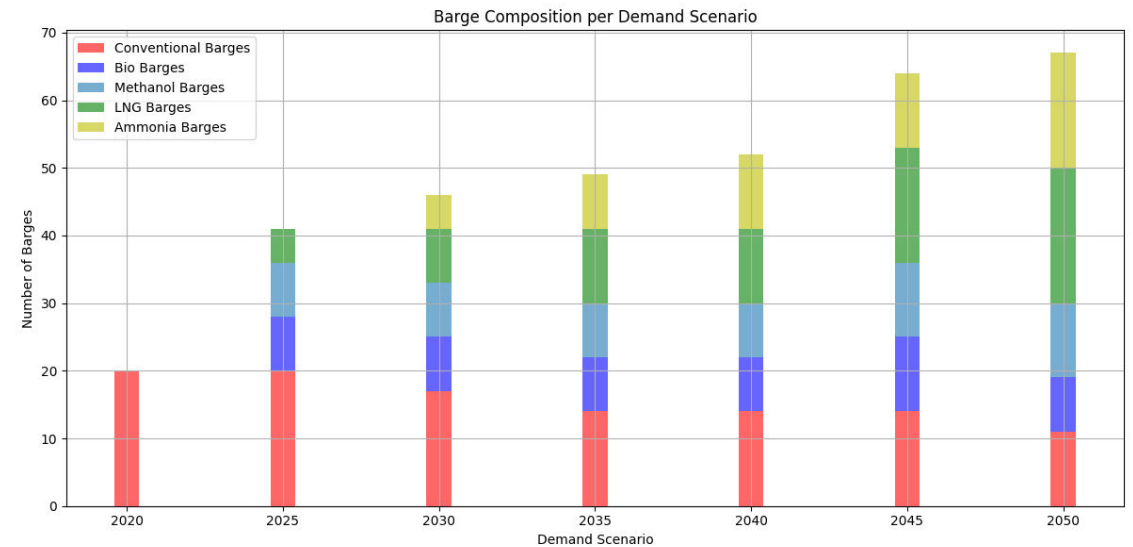
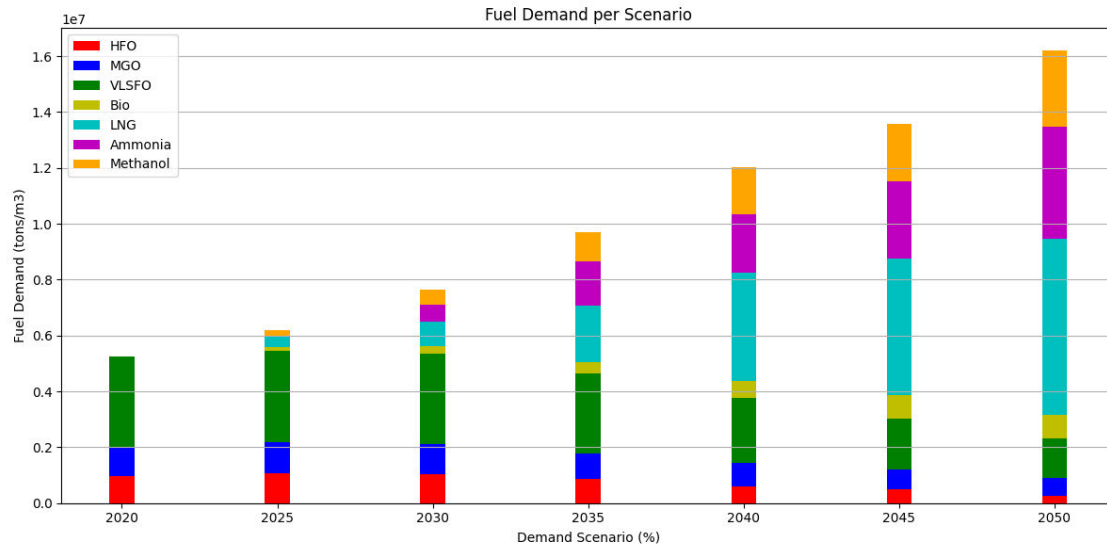
However, it is most probable that in Europe:

- Production is shifting
- Factories are closing

**Consequence:** Possible lower traditional inland tanker shipping volumes in the long term

# Liquid bulk market: future cargo flows (3)

Uptake of alternative fuels for seagoing vessels → different fuels needed → more bunker vessels needed, as the fuels are too different to be handled by one bunker ship type → more bunker vessels needed. → more (large) inland tankers for (F)ARA(G)



# Overarching insights



# Critical Success Factors

Not every cargo flow is automatically suitable for inland navigation.

Success depends on:

- sufficient scale,
- the ability to bundle volumes,
- predictable logistics,
- suitable terminals,
- transshipment possibilities,
- waterway capacity, and reliable water levels.

In addition, climate change creates an extra risk: low water levels reduce reliability.

# Inland navigation remains relevant, but must reposition itself

Inland navigation will not disappear, but most likely will undergo a fundamental transformation.

Future growth will come less from one large bulk market, but from **specialized niches**, such as:

- the circular economy,
- intermodal logistics (including reefers),
- high-value added supply chains (such CO<sub>2</sub> transport),
- alternative energy carriers.

The sector therefore needs to evolve from a traditional bulk carrier into a **flexible logistics partner within multimodal networks**.

However, the future remains uncertain and highly dependent on:

- policy decisions,
- energy prices,
- geopolitical developments,
- infrastructure investments.