

Toward greener freight: Overview of inland waterway transport for freight in the European Union

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INTRODUCTION

Inland waterway transport (IWT) is recognized as an environmentally friendly and energy-efficient shipping option among the three main inland transport modes, which also include road and railway. IWT systems allow ships and barges to travel on canals, rivers, and lakes between inland ports and wharfs. According to a European Court of Auditors analysis, IWT generated 33 gCO₂ per tonne-km (t-km) of greenhouse gas (GHG) emissions in 2018, slightly more than railway transport and far below road transport (Table 1).¹ The European Parliamentary Research Service (EPRS) has assessed that IWT uses 17% of the energy used by road transport and 50% that of rail transport.² Past research has also indicated that IWT is the cheapest shipping option, on average, among the three modes: a 2007 study found that IWT cost €0.0273/t-km for short distances (200 km) and €0.0195/t-km for long distances (1,000 km), both far lower than road and railway freight.³

1 European Court of Auditors, *Intermodal Freight Transport: EU Still Far from Getting Freight off the Road* (August 2023), <https://op.europa.eu/webpub/eca/special-reports/intermodal-freight-transport-08-2023/en/>.

2 Karin Jacobs, *Briefing: Inland Waterway Transport in the EU* (European Parliamentary Research Service, February 2022), [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698918/EPRS_BRI\(2022\)698918_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698918/EPRS_BRI(2022)698918_EN.pdf).

3 PLANCO Consulting GmbH, *Economical and Ecological Comparison of Transport Modes: Road, Railways and Inland Waterways* (2007), https://www.eca.europa.eu/lists/ecadocuments/sr15_01/sr15_01_en.pdf.

Acknowledgments: Funding for this work was generously provided by the Energy Foundation China (EF China). The authors are thankful for the constructive review and comments from Liudmila Osipova, Jinjian Li, and Hui He (ICCT). Thanks also to Jennifer Callahan and Tomás Husted, for editorial support.

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Table 1
Greenhouse gas emissions and cost of three inland transport modes

Freight transport mode	CO ₂ emissions ^a (g/t-km)	Transport cost ^b	
		200 km	1,000 km
Road	137	€0.143	€0.088
Railway	24	€0.160	€0.074
Inland waterway	33	€0.027	€0.020

^a European Court of Auditors, *Intermodal Freight Transport*.

^b PLANCO Consulting GmbH, *Economical and Ecological Comparison*.

In accordance with the Paris Agreement, the European Commission has set a goal of achieving a CO₂ emissions reduction of at least 55% by 2030, compared to 1990 levels, and of achieving climate neutrality by 2050.⁴ Given that transport emissions account for around one-quarter of the European Union’s total GHG emissions, and approximately 20% of transport emissions are from on-road trucks and lorries, the European Commission has proposed measures to make transport more efficient and sustainable, especially in the freight sector.⁵ As a more energy-efficient transport mode than road transport, IWT has the potential to play a key role in decarbonizing the European Union’s freight transport systems. The EPRS, for its part, also has emphasized that promoting intermodal transport and shifting freight from road to railway and waterway could be essential for freight decarbonization.⁶

This research brief examines the IWT system in the European Union, reviewing its scope, recent freight patterns, and key elements of its policy and regulatory framework. Data in this study are mainly drawn from the Eurostat database.⁷

INLAND WATERWAY TRANSPORT IN THE EUROPEAN UNION

MAIN INLAND WATERWAY TRANSPORT RIVER BASINS

Inland waterways play an important role in the transport of goods in Europe. The inland waterway network, approximately 41,000 kilometers in length, connects 25 EU Member States and hundreds of European cities; most industrial centers in the region can be reached via inland waterways.⁸

Figure 1 maps major inland waterways and important port cities in Europe, while Table 2 presents basic information on the Rhine and Danube, Europe’s top two rivers in terms of freight activity. The Rhine basin region has the largest population and waterway density and bears the largest amount of inland waterway freight transport of any river basin in the European Union: in 2022, of the 122 billion t-km of freight transported by inland waterways in the region, 49 billion (40%) took place on the Rhine corridor, between Basel and the North Sea.⁹ This was followed by the Danube with 22 billion t-km (18% of the total) and the Seine with 3.4 billion t-km (3%). The Elbe River in Germany is one of the main shipping lanes in Central Europe, on which freight vessels can sail from Berlin to the Port of Hamburg, Germany’s largest and busiest port.

4 European Commission, “European Climate Law,” accessed May 24, 2024, https://climate.ec.europa.eu/eu-action/european-climate-law_en.

5 European Court of Auditors, *Intermodal Freight Transport*.

6 Karin Jacobs, *Briefing: Inland Waterway Transport in the EU*.

7 Eurostat, Inland Waterways Transport [Database], <https://ec.europa.eu/eurostat/web/main/data/database>.

8 European Commission, *Future-Proofing European Inland Waterway Transport - NAIADES III Action Plan*, (2021), https://transport.ec.europa.eu/transport-modes/inland-waterways/promotion-inland-waterway-transport/naiades-iii-action-plan_en.

9 Central Commission for the Navigation of the Rhine, *Annual Report 2023: Inland Navigation in Europe Market Observation (2023)*, https://www.ccr-zkr.org/files/documents/om/om23_II_en.pdf.

Figure 1
Geographic distribution of inland waterways in Europe



Data source: Freight data from Central Commission for the Navigation of the Rhine, *Annual Report 2023*; Map and GIS data from China Academy of Science Resource and Environmental Science Data Platform, <https://www.resdc.cn/data.aspx?DATAID=210>.

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Waterway transport can be affected by natural factors such as bad weather conditions and uncharacteristically high or low water levels.¹⁰ Under most circumstances, vessels may not be capable of changing routines or being rerouted.¹¹ As discussed below, adverse weather and related factors have raised challenges for IWT freight activity in Europe.

Table 2
Overview of the Rhine and Danube river basins

	Rhine	Danube
Length	1,230 km	2,415 km (navigable)
Drainage basin	185,000 km ²	817,000 km ²
Flow	From Basel (Switzerland) to the North Sea	From Kelheim (Germany) to the Black Sea
Freight transport volume (2022)	292 million tonnes	30-40 million tonnes
Freight transport performance (2022)	49 billion t-km	23.9 billion t-km ^a
Primary passing states	Switzerland, Liechtenstein, Austria, France, Germany, Netherlands	Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Romania, Moldova, Ukraine

^a This figure includes EU Member States in the Danube regional grouping plus Serbia.

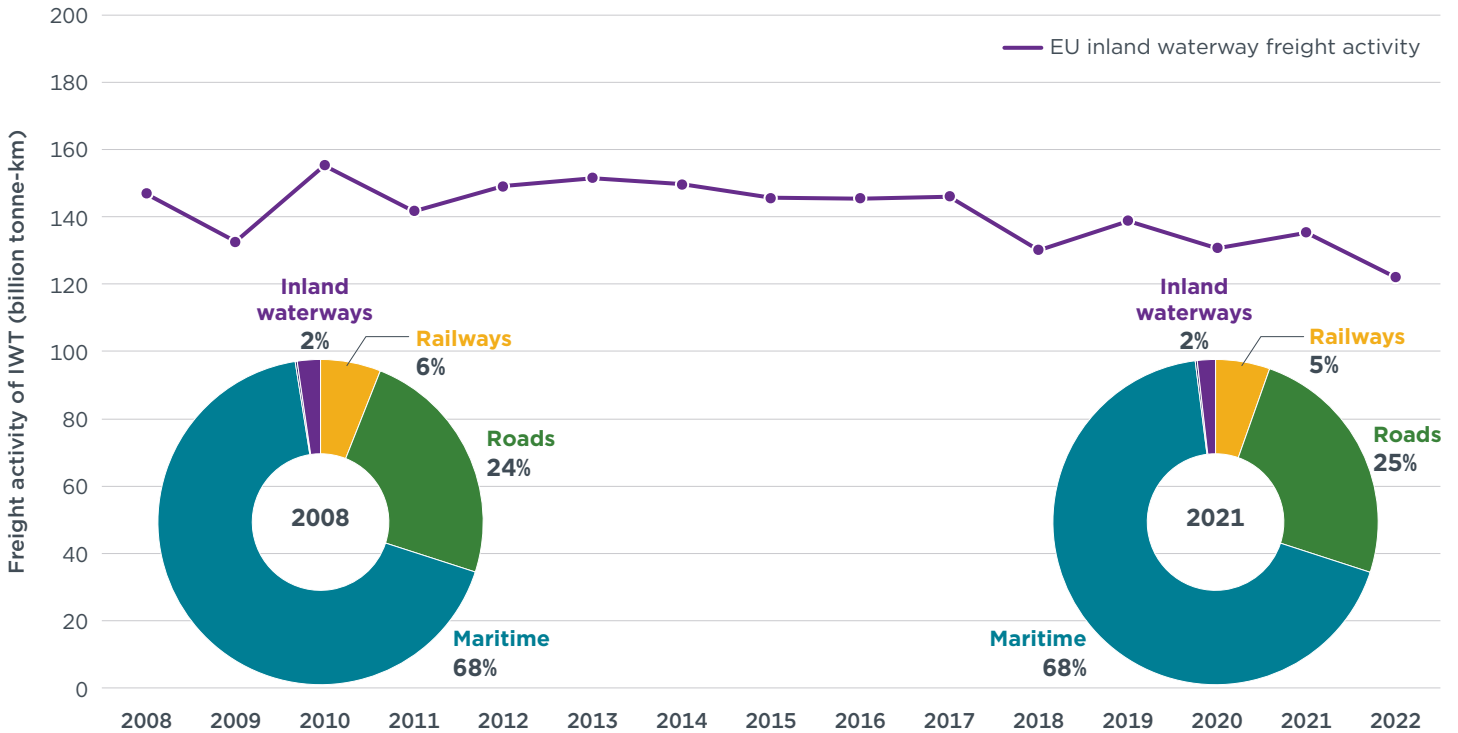
¹⁰ European Court of Auditors, *Intermodal Freight Transport*.

¹¹ European Court of Auditors, *Inland Waterway Transport in Europe: No Significant Improvements in Modal Share and Navigability Conditions since 2001* (2015), https://www.eca.europa.eu/lists/ecadocuments/sr15_01/sr15_01_en.pdf.

FREIGHT ACTIVITY

IWT activity in the European Union has remained relatively constant as a share of overall freight activity in the region. Figure 2 charts IWT freight activity in the European Union from 2008 to 2022 (illustrated by the purple line) and presents snapshots of freight modal split in 2008 and 2021. The share of total freight activity across all modes performed by IWT (measured in t-km) stayed around 2% each year, with a high point of 2.4% in 2010. The maritime sector has long dominated freight activity in the region, while on-road transportation is the major mode for inland freight.

Figure 2
Inland waterway freight activity in the European Union, 2008-2022



Note: Air freight, which comprised 0.2% of freight activity from 2008 to 2022, is not shown.

Data source: Eurostat Statistics Explained, "Inland Waterway Freight Transport - Quarterly and Annual Data," June 2023, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Inland_waterway_freight_transport_-_quarterly_and_annual_data.

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In terms of absolute freight activity, IWT has been comparatively more volatile. After peaking in 2010 at 155 billion t-km, it hovered around 145-150 billion t-km between 2012 and 2017 before dropping in 2018 to 130 billion t-km, after which there has been considerable year-on-year variation. Amid shifts toward road shipping, the total amount of inland waterway freight transport reached its lowest point in 2022, at 122 billion t-km, a 9.8% decrease from 2021.¹²

Measured in tonnes, the amount of cargo transported by inland waterway in Europe (including the EU, Switzerland, Serbia, and Moldova) decreased by 5.5% in 2022, while the amount transported on the Rhine (from Basel to the North Sea) declined by approximately 6.8%. According to the 2023 *Annual Market Observation Report* by the Central Commission for the Navigation of the Rhine (CCNR), several factors led to the depression of IWT activity in 2022, including low water levels in July and August

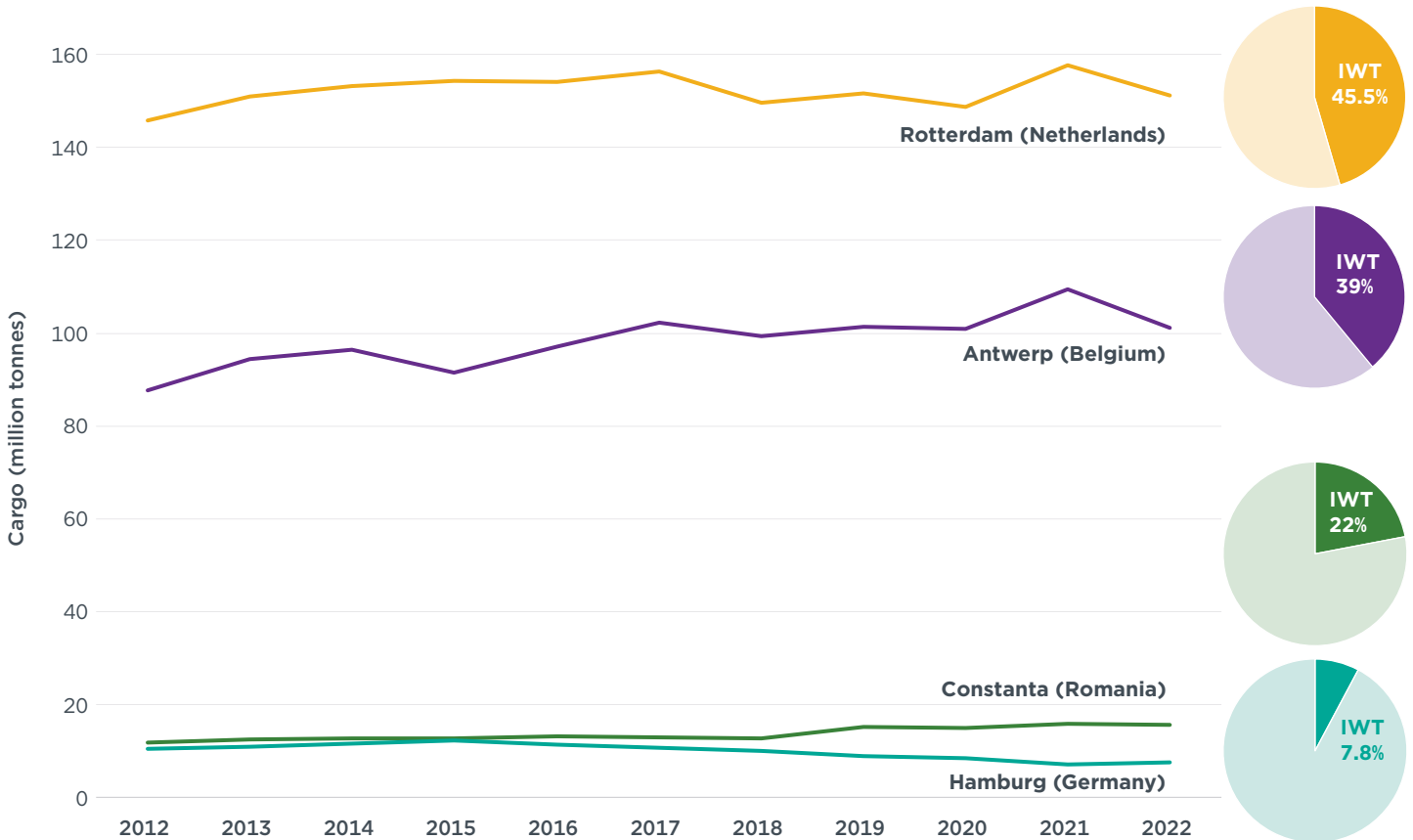
¹² Eurostat Statistics Explained, "Inland Waterway Freight Transport - Quarterly and Annual Data."

that left parts of the Rhine and Danube impassable by ship, disrupting the transportation of goods and commodities like oil and coal.¹³

MAIN INLAND WATERWAY PORTS

Figure 3 presents volumes of inland waterway cargo for four leading IWT ports in the European Union. All four ports are primarily seaports but play important roles in IWT.¹⁴ The Port of Rotterdam in the Netherlands is the largest port in Europe and the third largest in the world in terms of total cargo tonnage; in 2022, it handled 151.3 million tonnes of cargo, 45.5% of which was received from or sent to the IWT system. The Port of Antwerp in Belgium is the second-largest seaport in Europe. Its central location in Europe makes it a crucial hub for the transport of goods to and from the continent. The port plays a particularly important role in freight transport, handling 101.2 million tonnes of cargo in 2022, 39% of which were received from or sent to IWT. The ports of Constanta and Hamburg have the third- and fifth-largest IWT shares in the region and are critical to IWT systems in Romania and Germany, though their IWT handling shares are much more limited than those of Rotterdam and Antwerp.¹⁵

Figure 3
Inland waterway cargo handling volumes, 2012–2022, and IWT share in 2022 in major EU ports



Data source: European IWT Platform, *Inland Waterway Transport: Rivers of Opportunities to Deliver*.

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¹³ Central Commission for the Navigation of the Rhine (CCNR), *2023 Annual Report*; Jenny Gross, “Low Water Levels Disrupt European River Cruises, a Favorite of U.S. Tourists,” *New York Times*, August 29, 2022, <https://www.nytimes.com/2022/08/29/travel/river-cruises-drought-europe.html>.

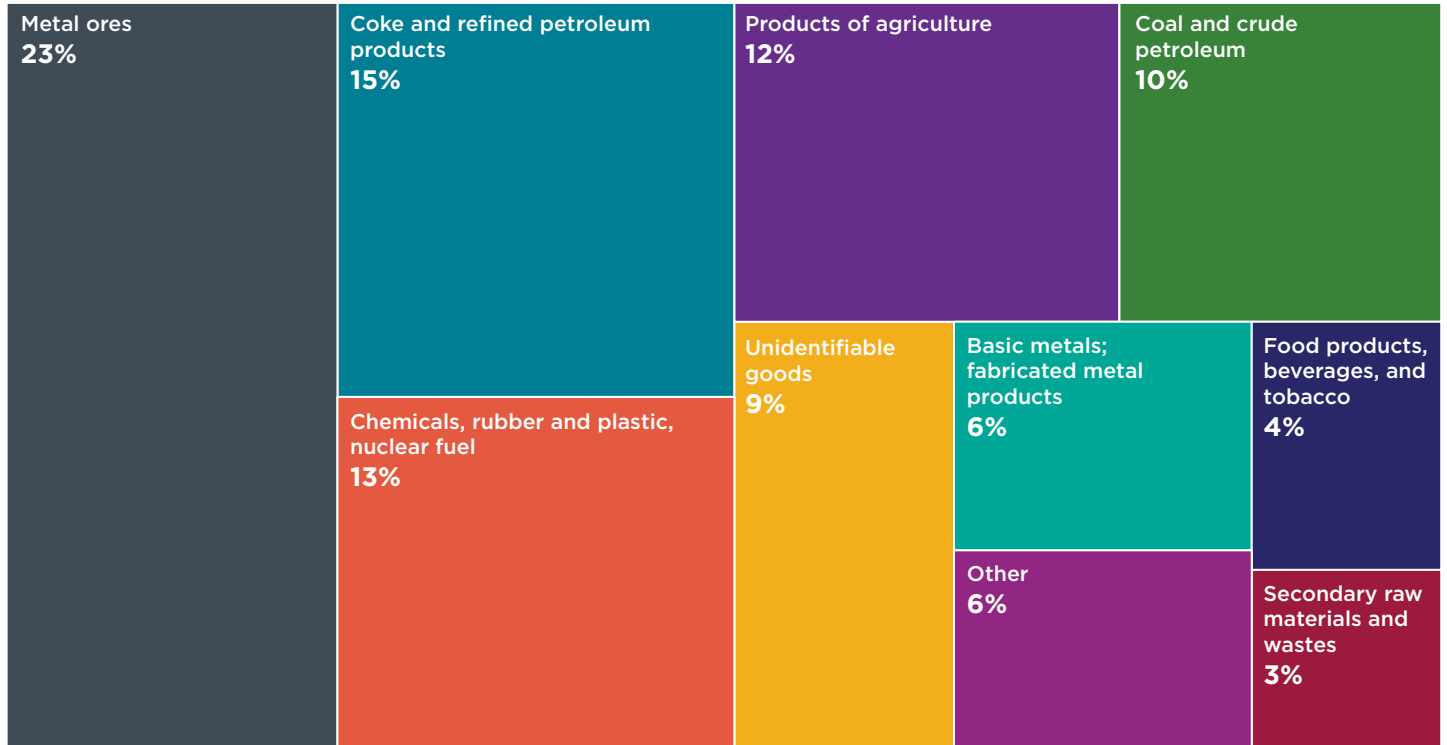
¹⁴ European IWT Platform, *Inland Waterway Transport: Rivers of Opportunities to Deliver* (2019), https://www.inlandwaterwaytransport.eu/wp-content/uploads/IWT-2633-Publication-European-IWT-Platform_FIN.pdf.

¹⁵ Historical data were unavailable in Eurostat for the fourth-leading port by IWT share, the North Sea Port.

COMMODITIES

Figure 4 shows the types of goods transported via inland waterway freight transport in the European Union. As IWT is often more time-consuming than road transport, it is commonly used for goods that may have less stringent delivery time requirements, like bulk cargo.¹⁶ All top five commodities are bulk cargos, which made up 73% of IWT activities in 2021, including metals ores (23%), coke and refined petroleum products (15%), chemicals (13%), agriculture products (12%), and coal and crude petroleum (10%).¹⁷

Figure 4
Inland waterway transport by type of good, 2021



Note: Percentage based on fleet turnover.
Data source: Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards).

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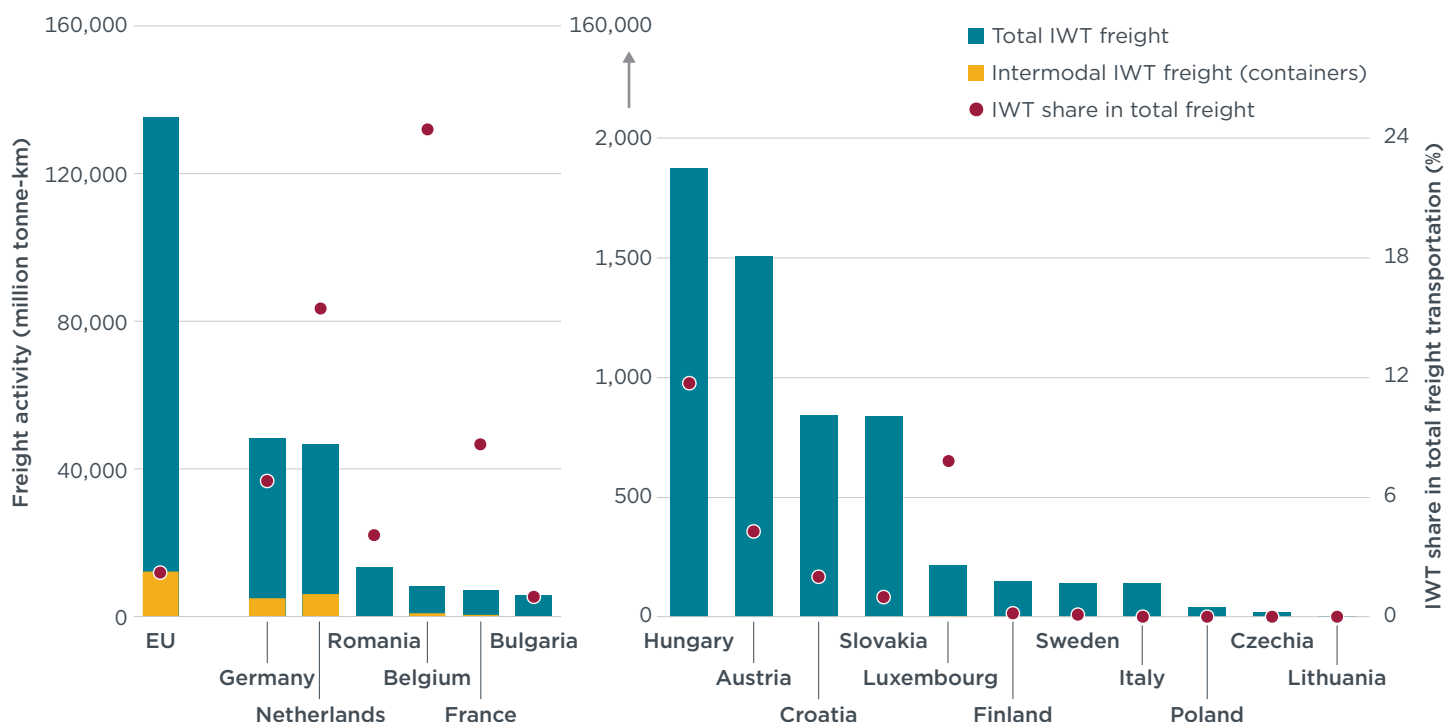
INLAND WATERWAY INTERMODAL TRANSPORT

Intermodal freight activity refers to the transport of goods using multiple modes without the need to handle the freight when changing modes. In this study, intermodal freight is estimated with the freight activity of containers. Figure 5 shows the overall intermodal freight activity and the share performed by IWT in the EU in 2021.¹⁸ In terms of overall IWT activity, Germany (48.2 billion t-km), the Netherlands (46.6 billion t-km), and Romania (13.5 billion t-km) had the highest levels by tonne-km, while Belgium (19.8%), the Netherlands (12.5%), and Hungary (11.7%) had the highest IWT shares among all freight modes. For the five countries that reported

¹⁶ European Court of Auditors, *Inland Waterway Transport in Europe*.
¹⁷ Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards) [Database], accessed June 18, 2024, https://doi.org/10.2908/IWW_GO_ATYGO.
¹⁸ Eurostat, Modal Split of Air, Sea and Inland Freight Transport [Database], accessed June 18, 2024, https://doi.org/10.2908/TRAN_HV_MS_FRMOD; Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards); Eurostat, Inland Waterways Transport, Container Transport by Type of Goods and Coverage (From 2007 Onwards) [Database], accessed June 18, 2024, https://doi.org/10.2908/IWW_GO_ACTYGO.

intermodal transportation data in terms of tonne-km containers, the Netherlands had the highest share of IWT freight (in t-km) shipped via intermodal transport, at 12.7%, followed by Germany (10.2%), Belgium (9.4%), France (6.1%), and Luxembourg (0.5%).

Figure 5
Intermodal freight transport and share performed by inland waterway, 2021



Data sources: Eurostat, Modal Split of Air, Sea and Inland Freight Transport; Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards); Eurostat, Inland Waterways Transport, Container Transport by Type of Goods and Coverage (From 2007 Onwards).

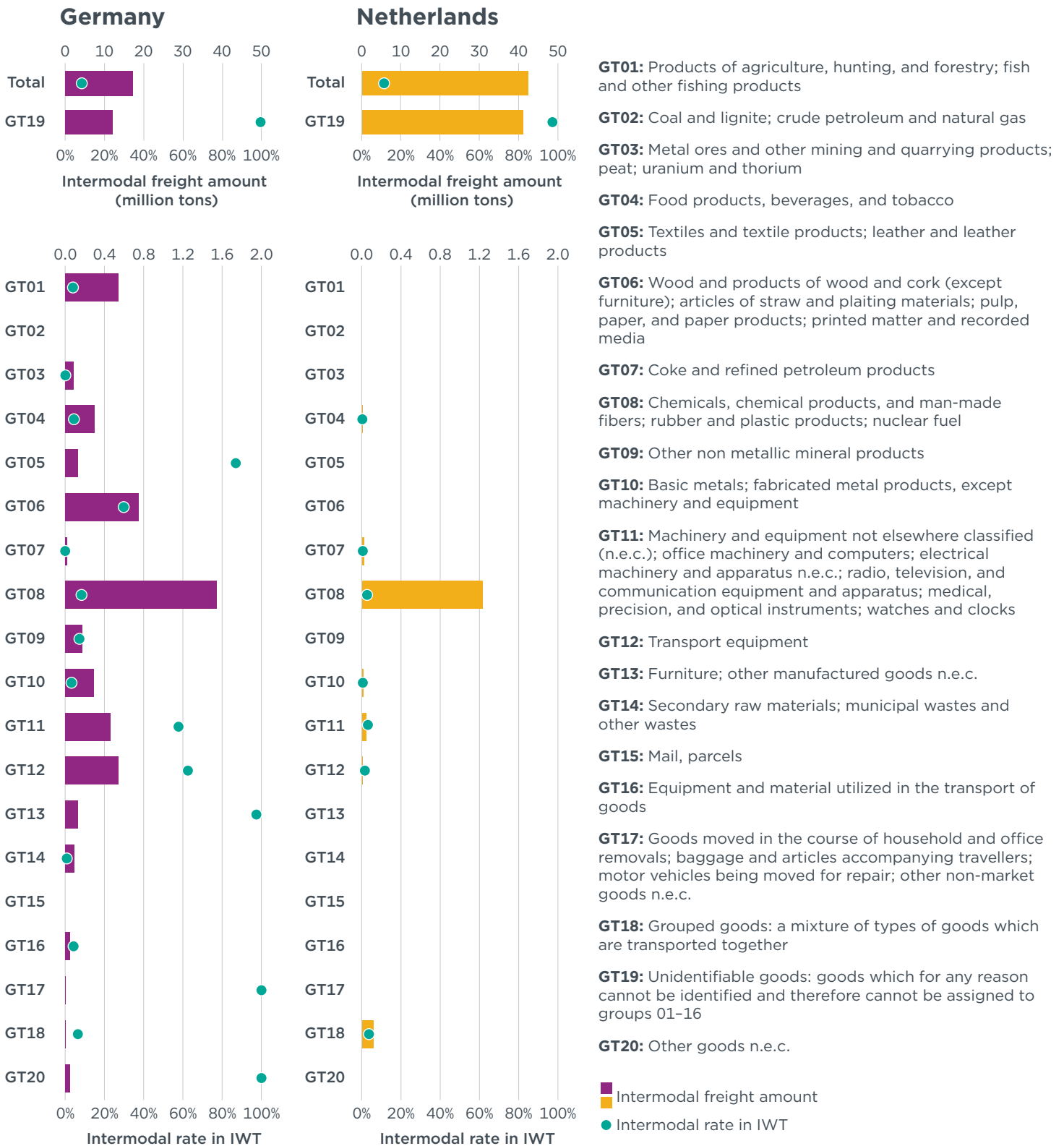
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Figure 6 presents intermodal freight amounts and intermodal rates by commodity type in Germany and the Netherlands.¹⁹ The commodity types are based on Eurostat categories. For both countries, a large share of goods shipped via intermodal freight was unidentified (denoted as category G19)—approximately 70% of the total amount for Germany and 97% for Netherlands—and nearly all unidentified freight was shipped via IWT (indicated by the green dots). Identifying this share of goods would allow policy-makers to gain a better understanding of intermodal freight development. Among identified freight, Germany had high rates of intermodal freight performed by IWT for non-market goods (GT17, 100% intermodal rate), furniture and other manufactured goods (GT13, 98%), textiles and leather (GT05, 97%), transport equipment (GT12, 62%), machinery and equipment (GT11, 58%), and woods products (GT06, 30%). Rates of intermodal transport performed by inland waterway are also high, at 58%, for high-value products like computers, televisions, and electrical machinery (GT11), which indicates Germany is a pioneer in the use of intermodal transport for high-value products. The Netherlands also has small amount of identified intermodal freight for chemicals (G08), machinery and equipment (GT11), and grouped goods (GT18), but intermodal rates were low.

¹⁹ Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards).

Figure 6

Intermodal freight amount and rate transported by inland waterway by commodity type in Germany and Netherlands, 2022



- GT01:** Products of agriculture, hunting, and forestry; fish and other fishing products
- GT02:** Coal and lignite; crude petroleum and natural gas
- GT03:** Metal ores and other mining and quarrying products; peat; uranium and thorium
- GT04:** Food products, beverages, and tobacco
- GT05:** Textiles and textile products; leather and leather products
- GT06:** Wood and products of wood and cork (except furniture); articles of straw and plaiting materials; pulp, paper, and paper products; printed matter and recorded media
- GT07:** Coke and refined petroleum products
- GT08:** Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel
- GT09:** Other non metallic mineral products
- GT10:** Basic metals; fabricated metal products, except machinery and equipment
- GT11:** Machinery and equipment not elsewhere classified (n.e.c.); office machinery and computers; electrical machinery and apparatus n.e.c.; radio, television, and communication equipment and apparatus; medical, precision, and optical instruments; watches and clocks
- GT12:** Transport equipment
- GT13:** Furniture; other manufactured goods n.e.c.
- GT14:** Secondary raw materials; municipal wastes and other wastes
- GT15:** Mail, parcels
- GT16:** Equipment and material utilized in the transport of goods
- GT17:** Goods moved in the course of household and office removals; baggage and articles accompanying travellers; motor vehicles being moved for repair; other non-market goods n.e.c.
- GT18:** Grouped goods: a mixture of types of goods which are transported together
- GT19:** Unidentifiable goods: goods which for any reason cannot be identified and therefore cannot be assigned to groups 01-16
- GT20:** Other goods n.e.c.

Data source: Eurostat, Inland Waterways Transport, Transport by Type of Good (From 2007 Onwards).

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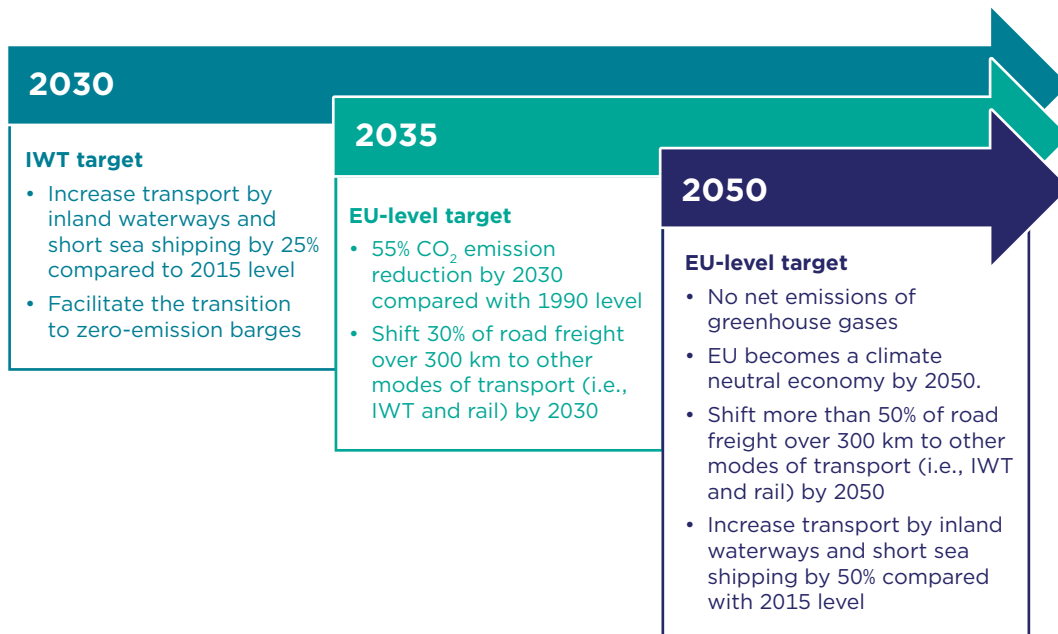
INLAND WATERWAY TRANSPORT POLICY REVIEW

The transformation of transport systems towards zero-emission mobility requires policy support. This section provides an overview of the regulatory framework and policy targets set for IWT by the European Commission. It reviews the policy development, strategic goals, and the involvement of relevant stakeholders.

OVERALL TARGETS

The European Commission has put forward various policies to promote IWT development. Figure 7 shows the EU's objectives for IWT in the coming decades, which generally aim to shift more cargo via Europe's rivers and canals and facilitate the transition to zero-emission barges by 2050, in particular by boosting the role of IWT in the EU's mobility and logistics systems. The following section reviews some of the key documents in which these core objectives are set forth, including the NAIADES Action Programme, the European Green Deal, and the Sustainable and Smart Mobility Strategy.

Figure 7
European Union development goals concerning inland waterway transport



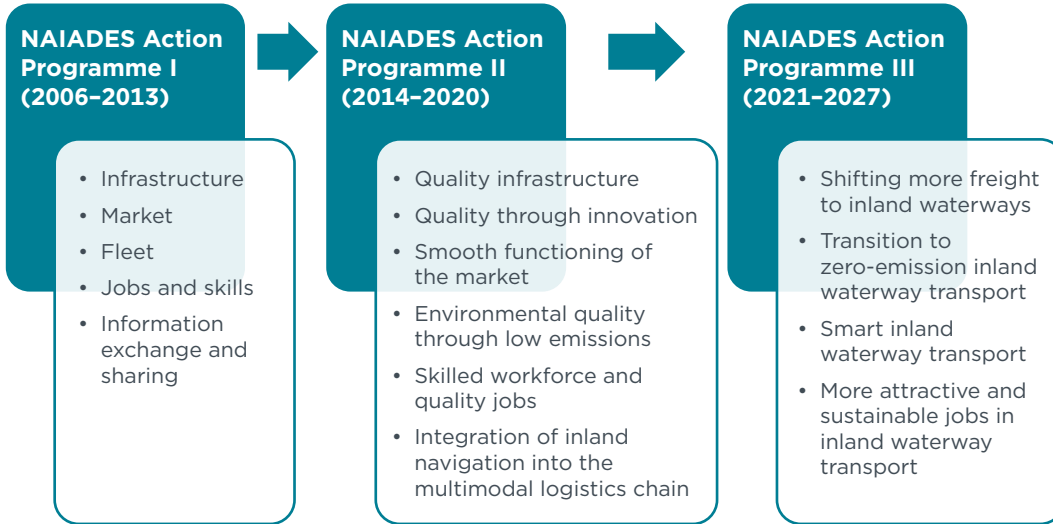
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NAIADES ACTION PROGRAMME

The NAIADES Action Programme includes a series of targets focused on improving the sustainable mobility of IWT (see Figure 8). The Commission has revised the program several times and it is currently in its third stage.

Figure 8

NAIADES Action Programme Series



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NAIADES Action Programme I (2006–2013)

In 2006, the Commission launched the NAIADES Action Programme for inland waterway promotion.²⁰ In this first phase, the program covered various areas, including staff working time arrangements, professional qualification requirements, infrastructure improvements, and the adoption of innovative technologies (e.g. the River Information Service, RIS). The Commission set up an operational platform, the Platform for the Implementation of NAIADES (PLATINA), which convenes Member States, river commissions, industry representatives, and other IWT stakeholders to support NAIADES. In terms of technical assistance, NAIADES programming included setting up online databases to provide real-time IWT information, screening regulatory and administrative barriers for private enterprises in the IWT sector, and regularly publicizing updated implementation plans for NAIADES funding.

NAIADES marked a milestone in the development of IWT in the European Union: For the first time, it set up a universally acknowledged platform in IWT sector and proposed actions for all stakeholders. In practice, however, NAIADES also encountered financial difficulties in its first phase. According to a 2011 mid-term progress report on NAIADES implementation published by the European Commission, the program was not equipped with appropriate financial resources from the EU budget and could only be compensated by PLATINA to some degree.²¹

²⁰ "Revision of NAIADES," European Commission, accessed June 18, 2024, https://transport.ec.europa.eu/transport-modes/inland-waterways/promotion-inland-waterway-transport/revision-naiaades_en.

²¹ European Commission, *Mid-Term Progress Report on the Implementation of the NAIADES Action Programme for the Promotion of Inland Waterway Transport* (2011), https://transport.ec.europa.eu/document/download/a070be92-eabe-4906-8cc5-3bb5deb51ba2_en?filename=sec_2011_453.pdf.

NAIADES Action Programme II: Towards quality inland waterway transport (2014–2020)

In 2013, the Commission revised the programme and launched NAIADES II, “Towards quality inland waterway transport,” for the period 2014–2020.²² Among other areas, the revised program focused on planning and constructing infrastructure, reducing emissions from IWT, and effectively integrating inland navigation into the multimodal logistics chain. The Commission also established a program support action (PSA) to aid in assessing the capacity of ports and inland waterways, identifying European research and innovation priorities in the IWT sector, and supporting relevant policy measures. The PSA also has supported the study of digital inland waterway and RIS standards.

NAIADES Action Programme III: Boosting future-proof European inland waterway transport (2021–2027)

In 2021, the Commission published the NAIADES Action Programme III.²³ This initiative aims to meet the goals of the European Green Deal and the Sustainable and Smart Mobility Strategy (discussed below) and is focused on two core objectives: “shifting more freight transport to inland waterways” and establishing “an irreversible path towards zero emission inland vessels.”²⁴ The action plan also incorporates measures to facilitate the development and deployment of innovative, zero-emission, and zero-waste technologies for vessels and inland ports.

Major focus areas of the third phase of the programme include the following:

1. **Shift more freight to inland waterways:** The Commission noted that if IWT is intended to increase in freight volumes and stay competitive with other transport modes, it is important to provide sufficiently safe and efficient navigation conditions that enable physical and digital connection to other transport modes. The first measure is to develop “fit-for-future” infrastructure that is resilient to the impacts of climate change, such as droughts and floods. In addition, the Commission aims to increase support for improving the quality of inland port infrastructure and multimodal connectivity to rail, road, and sea through shipping terminals. The program also emphasizes IWT’s role in contributing to the last mile of city logistics in urban hubs.²⁵
2. **Transition to zero-emission inland waterway transport:** Zero-emission IWT refers to zero-emission vessels in addition to greener inland waterway ports and other infrastructure. Toward a future zero-emission fleet, the Commission established the Zero-Emissions Waterborne Partnership (with a budget of €530 million) which focuses on the improvement of technologies, including innovative propulsion and sustainable fuels.²⁶ In addition, the Commission has committed to using the EU energy index, a comprehensive methodology implemented by PLATINA 3, to report and monitor inland waterway vessels’ performance.²⁷
3. **Encourage smart inland waterway transport:** Smart IWT refers to the digitization and automation of the transport system, aiming at improving the efficiency and reliability of navigation and traffic management and better integrating IWT in logistics processes and multimodal chains. Measures include financing the Connecting Europe Facility and Horizon Europe, and the revision of the RIS Directive.

22 “NAIADES II,” European Commission, accessed June 18, 2024, https://transport.ec.europa.eu/transport-modes/inland-waterways/promotion-inland-waterway-transport/naiades-ii_en.

23 European Commission, *NAIADES Action Programme III: Boosting Future-Proof European Inland Waterway Transport* (2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0324>.

24 European Parliament’s Committee on Transport and Tourism, *NAIADES III: An Inland Waterway Transport Action Plan for 2021–2027* (2021), https://www.europarl.europa.eu/cmsdata/243175/Rosca_en.pdf.

25 European Commission, *NAIADES Action Programme III*.

26 European Parliament’s Committee on Transport and Tourism, *NAIADES III*.

27 PLATINA 3, *PLATINA 3 IWT Policy Platform: Report on Implementation of European IWT Emission Label / Energy Index/ GLEC for Vessels D2.6* (2022), <https://platina3.eu/towards-implementation-of-a-label-system-for-eu-inland-vessels/>.

4. Establish governance structure: Governance refers to coordination and cooperation among key stakeholders, including between the Commission and EU Member States, the Central Commission for Navigation on the Rhine (CCNR), the Danube Commission, and the United Nations Economic Commission for Europe. This governing structure aims to ensure the harmonization of EU policy and increase the sector's efficiency.

HIGH-LEVEL REGULATION AND FRAMEWORK

European Green Deal

The European Green Deal, approved in 2020, set out a new growth strategy for Europe.²⁸ Besides the overall target of a 90% reduction of CO₂ emissions in the transportation sector by 2050, it also includes a Sustainable and Smart Mobility Strategy for the transport and mobility sector, presented in 2020.²⁹ The Green Deal also sets out a target of shifting a “substantial” portion of inland freight from road to inland waterway and rail, and expects a “fully operational, multimodal Trans-European Network” for sustainable and smart transport with high-speed connectivity by 2050, with transport by inland waterways and short sea shipping increasing by 25% by 2030 and 50% by 2050.³⁰

The “Fit for 55 package,” finalized by the Commission in October 2023, revised and updated EU legislation in line with emissions reduction goals in the Green Deal. The package sets binding climate targets for all sectors of the economy, and includes measures that will impact inland waterway transportation.³¹ The Commission will further encourage the wider use of low-carbon fuels through tax incentives in the revision of Energy Taxation Directive.³² For transport facilities, the updated Alternative Fuels Infrastructure Regulation (AFIR), which came into force in April 2024, aims to ensure the minimum availability of relevant alternative fuels infrastructure by 2030 for all transport modes, including zero-emission inland vessels.³³ For example, the AFIR requires maritime ports that receive large container vessels to provide onshore electricity installations and alternative fuels infrastructure at inland ports by 2030.³⁴

Other maritime-related regulations will also potentially influence inland waterways as the two transport modes are highly connected (see Figure 4). The FuelEU Maritime initiative aims to increase the demand and long-term use of renewable and low-carbon fuels in order to reduce GHG emissions in the shipping sector.³⁵ The regulation requires that the GHG intensity of fuels in shipping sector decrease by 2% in 2025 to as much as

28 European Commission, “Green Deal: Greening Freight for More Economic Gain with Less Environmental Impact [Press release],” July 11, 2023, https://ec.europa.eu/commission/presscorner/detail/en/IP_23_3767.

29 “A Fundamental Transport Transformation: Commission Presents Its Plan for Green, Smart and Affordable Mobility,” European Commission, accessed June 18, 2024, https://transport.ec.europa.eu/transport-themes/mobility-strategy_en.

30 European Parliament’s Committee on Transport and Tourism, *NAIADES III*; “European Commission Released a Follow up Plan on Its EU Green Deal,” European IWT Platform, February 2, 2021, <https://www.inlandwaterwaytransport.eu/eu-commission-released-follow-up-plan-on-its-eu-green-deal/>.

31 European Commission, “Commission Welcomes Completion of Key ‘Fit for 55’ Legislation, Putting EU on Track to Exceed 2030 Targets Page [Press release],” October 9, 2023, https://ec.europa.eu/commission/presscorner/detail/en/IP_23_4754.

32 European Commission, “Revision of the Energy Taxation Directive (ETD): Questions and Answers [Press release],” July 14, 2021, https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3662.

33 “Alternative Fuels Infrastructure Regulation,” European Commission, accessed June 18, 2024, https://transport.ec.europa.eu/transport-themes/clean-transport/alternative-fuels-sustainable-mobility-europe/alternative-fuels-infrastructure_en; European Commission Directorate-General for Mobility and Transport, “Alternative Fuels Infrastructure Regulation: Q&A On Operating Recharging Infrastructure,” April 12, 2024, https://transport.ec.europa.eu/news-events/news/alternative-fuels-infrastructure-regulation-qa-operating-recharging-infrastructure-2024-04-12_en#:~:text=The%20Alternative%20Fuels%20Infrastructure%20Regulation,recharging%20and%20refuelling%20transport%20infrastructure.

34 Council of the European Union, “Alternative Fuels Infrastructure: Council Adopts New Law for More Recharging and Refuelling Stations across Europe [Press release],” July 5, 2023, <https://www.consilium.europa.eu/en/press/press-releases/2023/07/25/alternative-fuels-infrastructure-council-adopts-new-law-for-more-recharging-and-refuelling-stations-across-europe/>.

35 Council of the European Union, “FuelEU Maritime Initiative: Council Adopts New Law to Decarbonise the Maritime Sector [Press release],” July 25, 2023, <https://www.consilium.europa.eu/en/press/press-releases/2023/07/25/fueleu-maritime-initiative-council-adopts-new-law-to-decarbonise-the-maritime-sector/>.

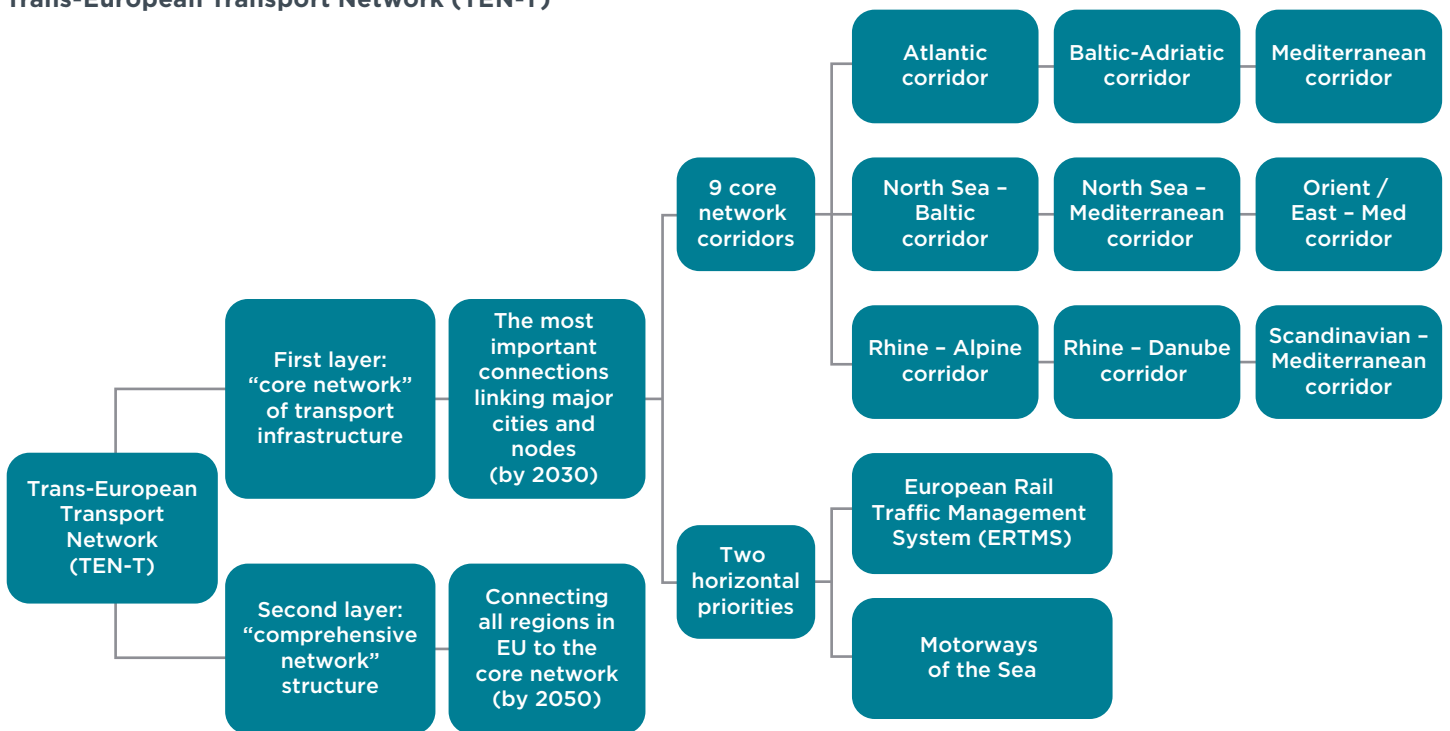
80% by 2050. From 2030, all passenger and container vessels will be obligated to use on-shore power supply for all electricity needs while mooring at ports.

TRANS-EUROPEAN TRANSPORT NETWORK

The Trans-European Transport Network (TEN-T) policy is a Europe-wide transport network that is in development. It currently consists of two layers: the core network, which comprises “the most important connections linking major cities and nodes” and is scheduled to be completed by 2030, and the comprehensive network, which will connect all EU regions to the core network and is due to be completed by 2050.³⁶ The network will consist of nine core corridors and two horizontal priorities (see Figure 9). According to the EU, the TEN-T policy is designed to reduce the environmental impacts from transport and increase the safety of the sector, which comprises inland waterways, inland ports, railways, short sea shipping routes, and roads linking urban nodes and maritime infrastructure. The current version was ratified in 2023 to be aligned with the European Green Deal and the Sustainable and Smart Mobility Strategy.

Figure 9

Trans-European Transport Network (TEN-T)



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The Commission has nominated a European Coordinator for each corridor and horizontal priority who acts as an “ambassador” of the TEN-T policy. These coordinators are accountable for creating and updating corridor work plans, analysis of the required investment, and reporting annually on progress.³⁷

PRIMARY STAKEHOLDER ENGAGEMENT

The IWT system in the European Union involves the participation of several stakeholders, including the European Barge Union (EBU), the European Skipper’s Organization (ESO), and the European IWT Platform.

³⁶ “Trans-European Transport Network (TEN-T),” European Commission, accessed June 18, 2024, https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en.

³⁷ European Court of Auditors, *Intermodal Freight Transport*.

The European Barge Union represents national associations of barge owners and barge operators of nine countries—Austria, Belgium, Czech Republic, France, Germany, Luxemburg, Netherlands, Romania, and Switzerland—as well as international associations in the field of inland navigation and related areas. It also represents the interests of the inland shipping industry at the regional and international levels, and has stated an aim to facilitate the development of a sustainable European transport system.³⁸

The European Skipper's Organization represents private inland shipping entrepreneurs within Europe; its general assembly includes representatives from Belgium, France, Germany, the Netherlands, and Poland.³⁹ In an example of recent advocacy, the organization publicized the *Urgent COVID-19 recommendations for Inland Waterways Transport* in 2020, requesting support from the European Commission, EU Member States, and River Commissions to support the IWT sector in its recovery from COVID-19.⁴⁰

The European IWT Platform was established in 2018 as an executive body of the European Barge Union and the European Skipper's Organization.⁴¹ It consists of five committees: Innovation and Greening, Sustainability, Environment, and Safety, Social and Education, Nautical and Technical Aspects, and Infrastructure.

The objectives of these organizations often coincide, as illustrated by the expressed collective support for the adoption of NAIADES III in 2021. The three organizations reiterated that NAIADES III is in line with their positions to promote inland freight shipping in Europe and achieve greater shifts in freight transport from road to inland waterways. They also emphasized the importance of the energy transition and alternative fuels availability in the IWT sector.⁴²

CONCLUSIONS

The brief provides an overview of IWT trends and regulatory issues in the European Union. Although inland waterways currently carry about 2% of overall freight transport per year in the region, as a cost-efficient and clean transport mode, IWT has the potential to contribute to shipping decarbonization.

Various policies have been implemented to encourage the use of IWT. In 2006, the European Commission adopted the NAIADES Action Programme, aimed at improving the quality and sustainability of IWT. Now in its third phase, the core objectives include shifting more cargo over Europe's rivers and canals and facilitating the transition to zero-emission barges by 2050. These actions are in line with the Green Deal and Sustainable & Smart Mobility Strategy, which envision increasing IWT and short sea shipping by 25% by 2030 and 50% by 2050, both compared to 2015 level. Both the NAIADES III programme and the Green Deal entail measures for IWT development, such as infrastructure refurbishment, legislative proposals, and intermodal transportation. As the EU strives toward climate neutrality in the coming decades, further development of the IWT system could help advance efforts to decarbonize the region's freight transport sector.

38 "About EBU," European Barge Union, accessed June 18, 2024, <https://www.ebu-uenf.org/about-ebu/>.

39 "About ESO," European Skipper's Organisation, accessed June 18, 2024, <https://www.eso-oeb.org/>.

40 European Skipper's Organisation, "Urgent COVID-19 Recommendations for Inland Waterways Transport [Press release]," March 31, 2020, <https://www.eso-oeb.org/2020/04/01/social-iwt-partners-on-urgent-covid-19-recommendations/>.

41 "The Organization: How Are We Organized and What Are Our Objectives?" European IWT Platform, accessed June 18, 2024, <https://www.inlandwaterwaytransport.eu/the-organization/>.

42 European Barge Union, "European Parliament Adopts the Own-Initiative Report of MEP Nagtegaal: Towards Future-Proof Inland Waterway Transport [Press release]," September 16, 2021, <https://www.ebu-uenf.org/wp-content/uploads/Press-release-2021-09-16-EP-IWT-Report-adoption.pdf>.



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