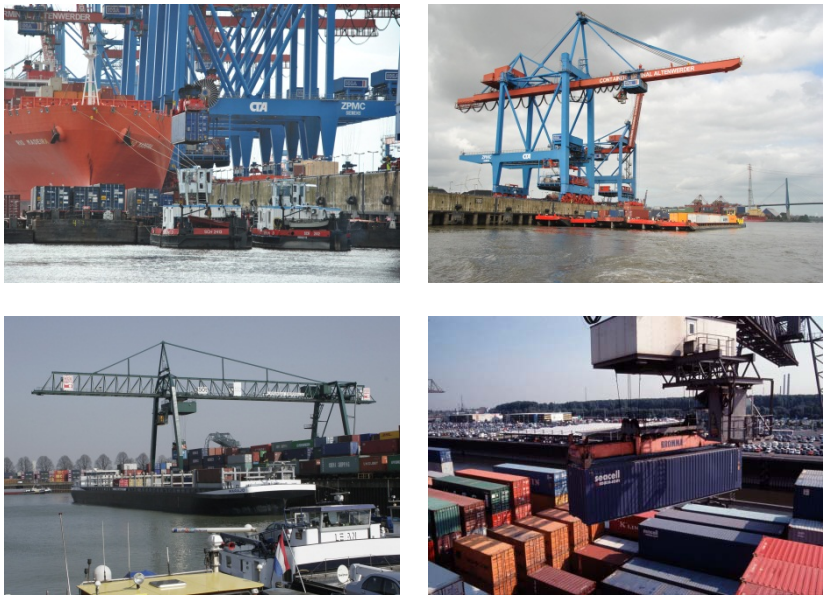
Modal shift to inland navigation – facts and figures

Stockholm, 23 May 2018



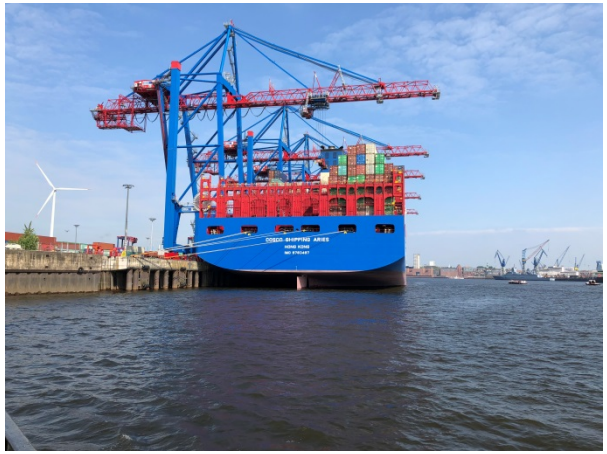
Sources: Häfen und Güterverkehr Köln AG, Neuss-Düsseldorfer Häfen, Hafen Hamburg Marketing e.V.

Agenda

- About PLANCO
- Inland waterway transport markets
- Socioeconomic gains of modal shift to inland waterway
- Policies to strengthen inland waterway transport

About PLANCO

- Founded 1971 in Essen
- Offices in Essen, Schwerin, London
- One of the leading transport consultants in Germany
- Focus on freight transport and waterborne transport chains



Source: Planco

Fields of activities

- Traffic forecasting – „Bundesverkehrswegeplan“
- Traffic flow simulations / Modal shift modelling
- Feasibility studies for infrastructure projects, ports and terminals
- Port development concepts
- Transport policy and regulation
- Regional development concepts
- Project management
- Development of EU funding applications

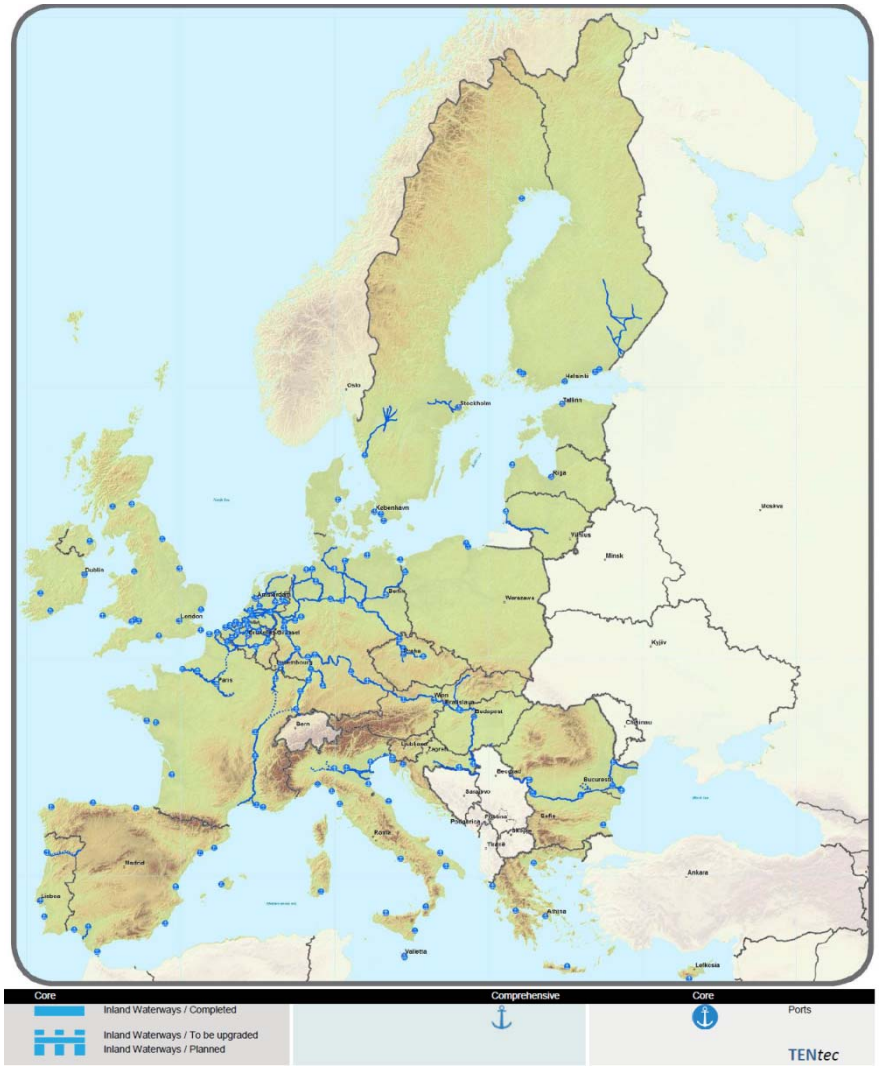
Source: Port of Hamburg Marketing

Study example for Sweden

- Benefits of eliminating pilotage fees:
  - Effect on transport cost
  - Modal shift to IWT
  - Savings for the economy: transport cost, environmental cost, accident cost

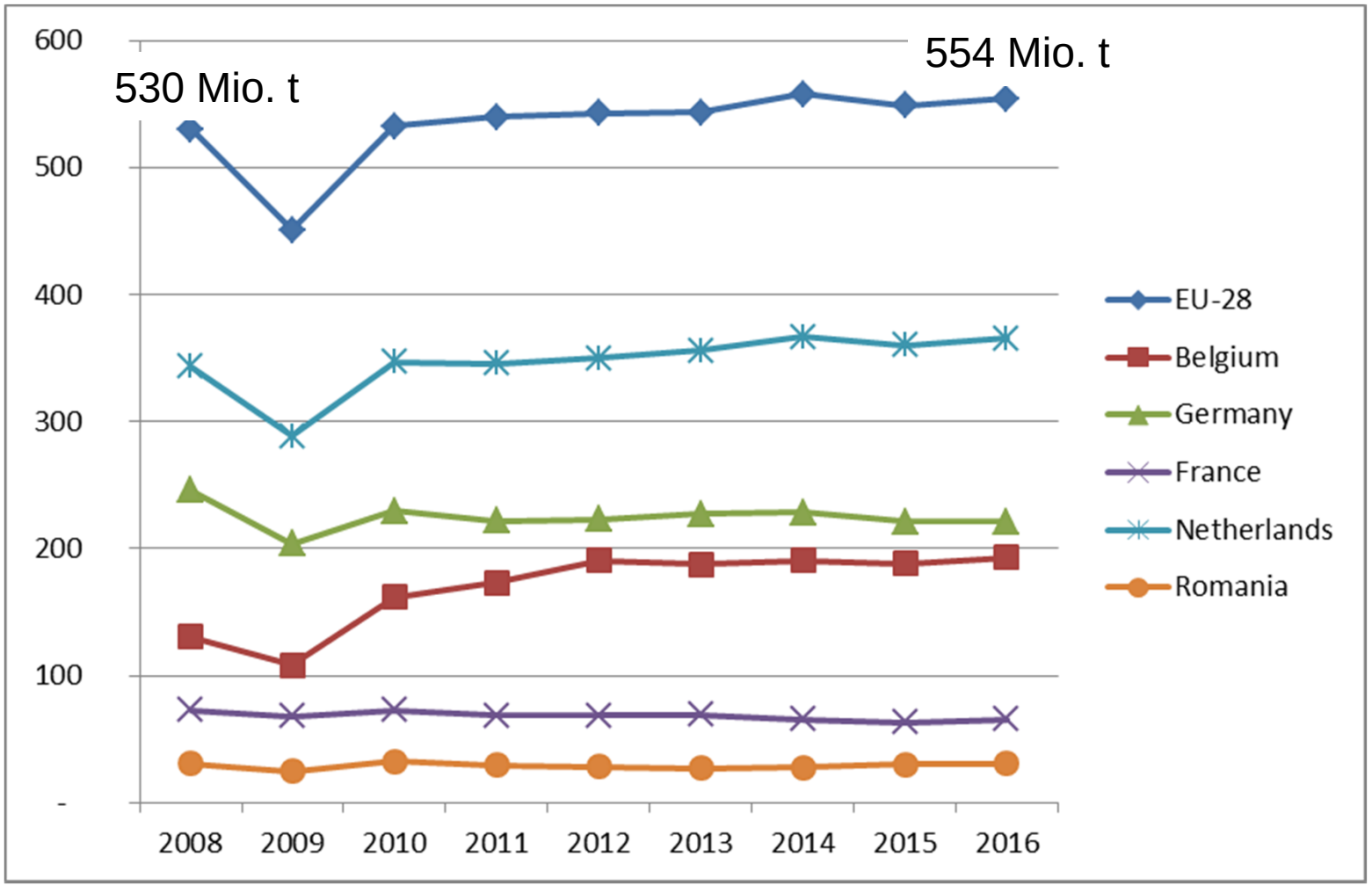
Source: Port of Hamburg Marketing

TEN-T waterway network



Source: TENtec

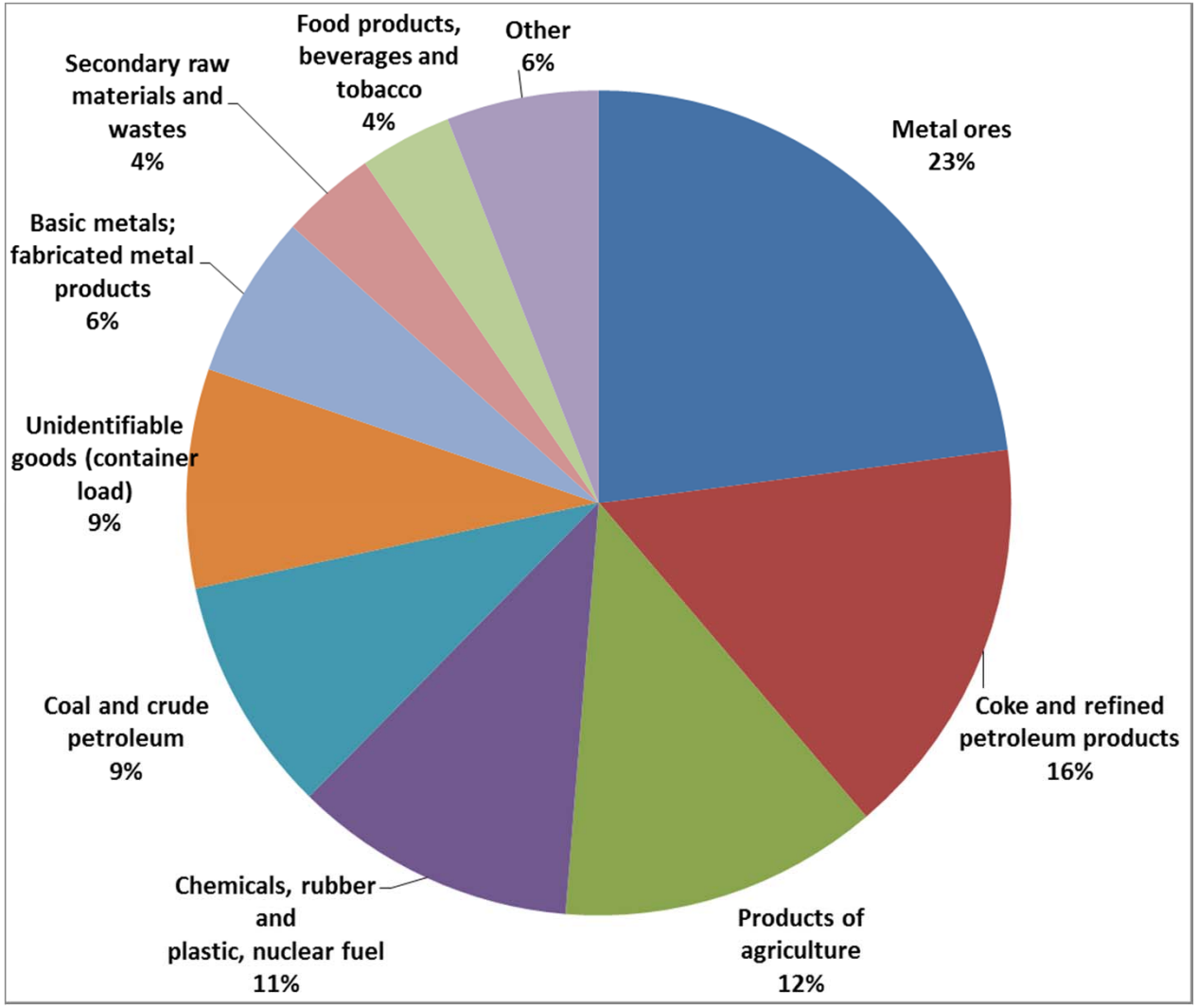
IWT volumes



Source: Eurostat

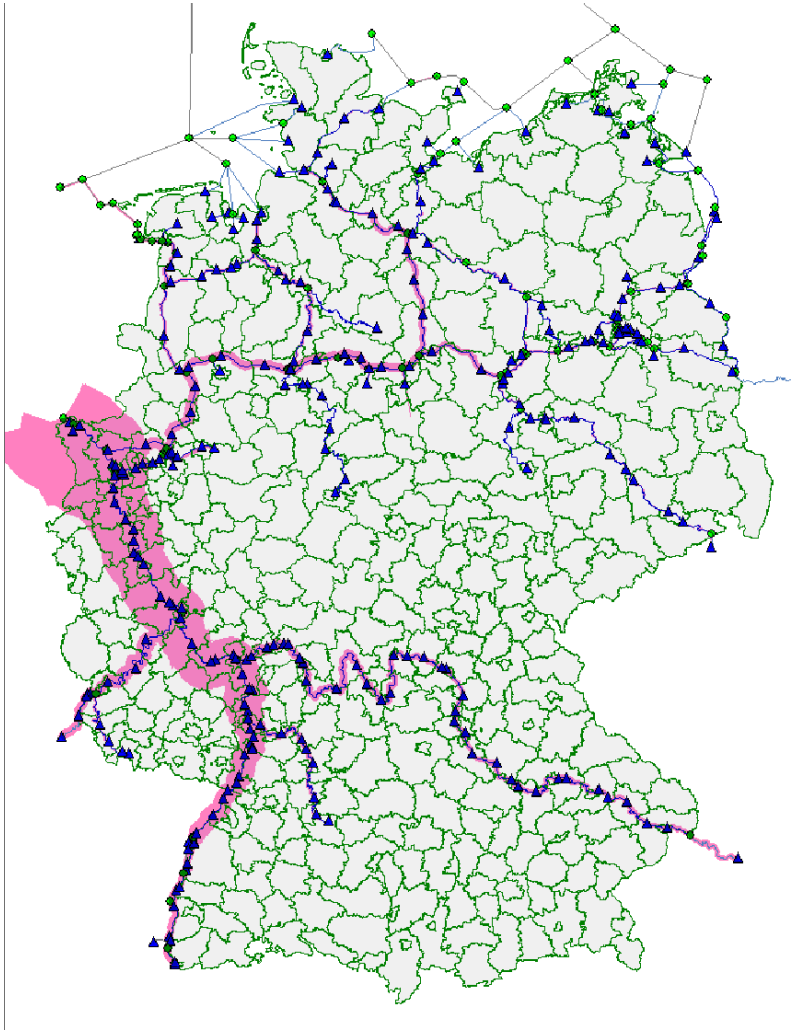
IWT Commodities

Commodity share %



Source: Eurostat

IWT Germany – Forecast 2030

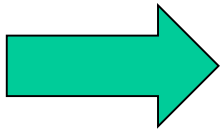


Source: Planco

- IWT growth 2010-2030:
  ø 0,9% p.a.
- 2010: 230 Mio. t
  -> 2030: 276 Mio. t
- Growth, but declining IWT share in modal split:
  2010: 10,3%
  -> 2030: 9,1%

Factors for IWT in modal choice

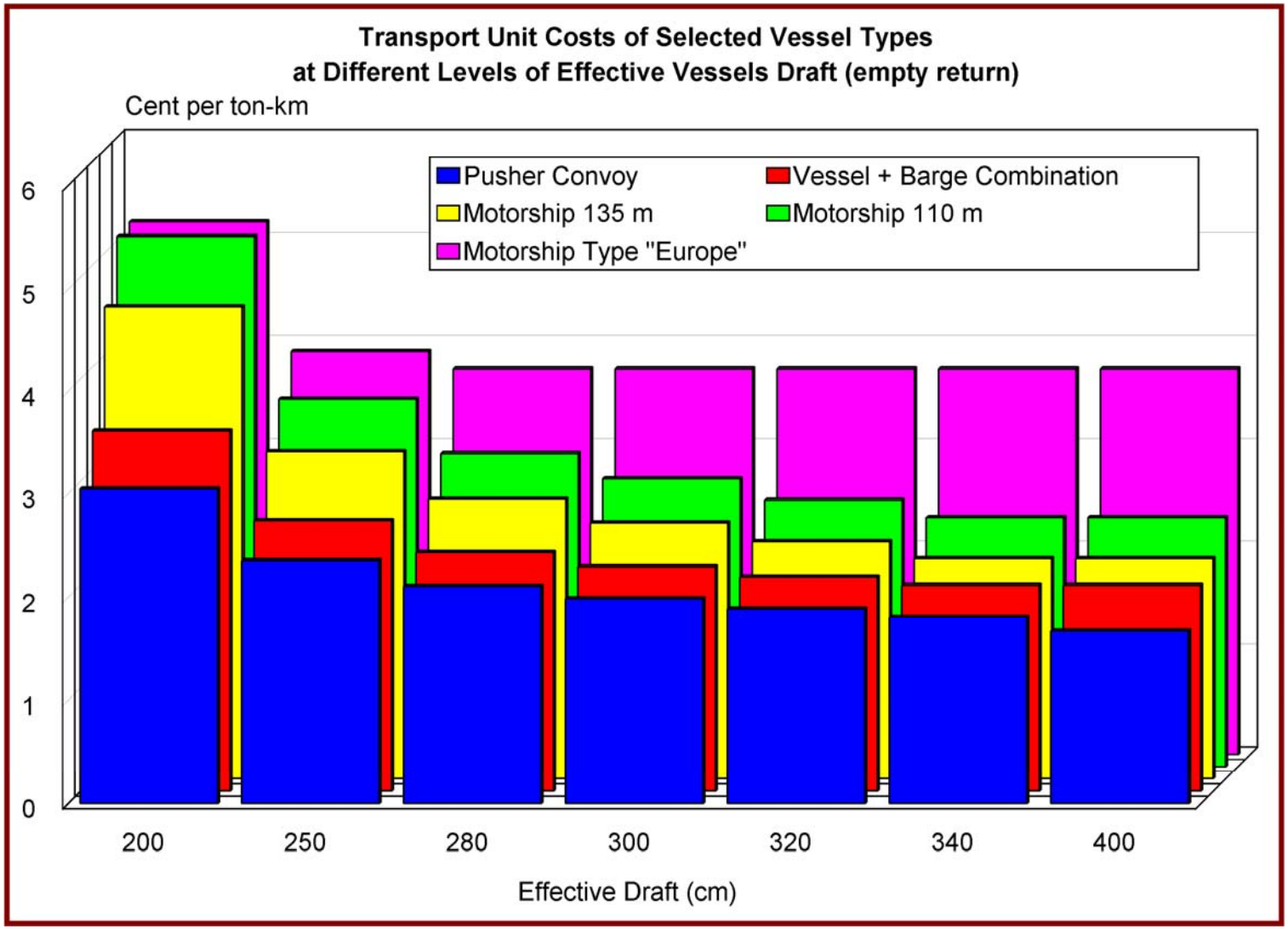
- Cost advantage key factor for mode decision
- Better suitability of IWT for transports may contribute
  - Large volumes
  - Less time sensitive freight
  - Reliability
  - Load dimensions
- Environmental aspects rather marketing factor from a commercial perspective



Requirements for commercial IWT

- Cargo potential and market size
- Infrastructure and navigation conditions
- Cost-efficient operation (incl. handling and pre-/end-haulage)

Economies of scale and density for IWT



Source: Planco

Internal cost
inland waterway container transport

	CT iww/road Antwerpen-Duisburg (Belgium-Germany, 310 km)
Total cost	**216 €**
Cost category	**Share of total cost**
Vessel	13%
Staff	4%
Fuel	2%
Handling seaport	22%
Handling inland terminal	14%
Pre-/End-haulage	45%

Source: Planco

JOWI vessel
Dimensions: 135 m x 17,5 m
Load: 484 TEU on 4 layers

Source: Planco

Price 20 foot container (TEU):

- Barge: 290 € (including congestion surcharge, excluding bunker surcharge)
- Benchmark truck: 350 €

Internal cost
inland waterway container transport

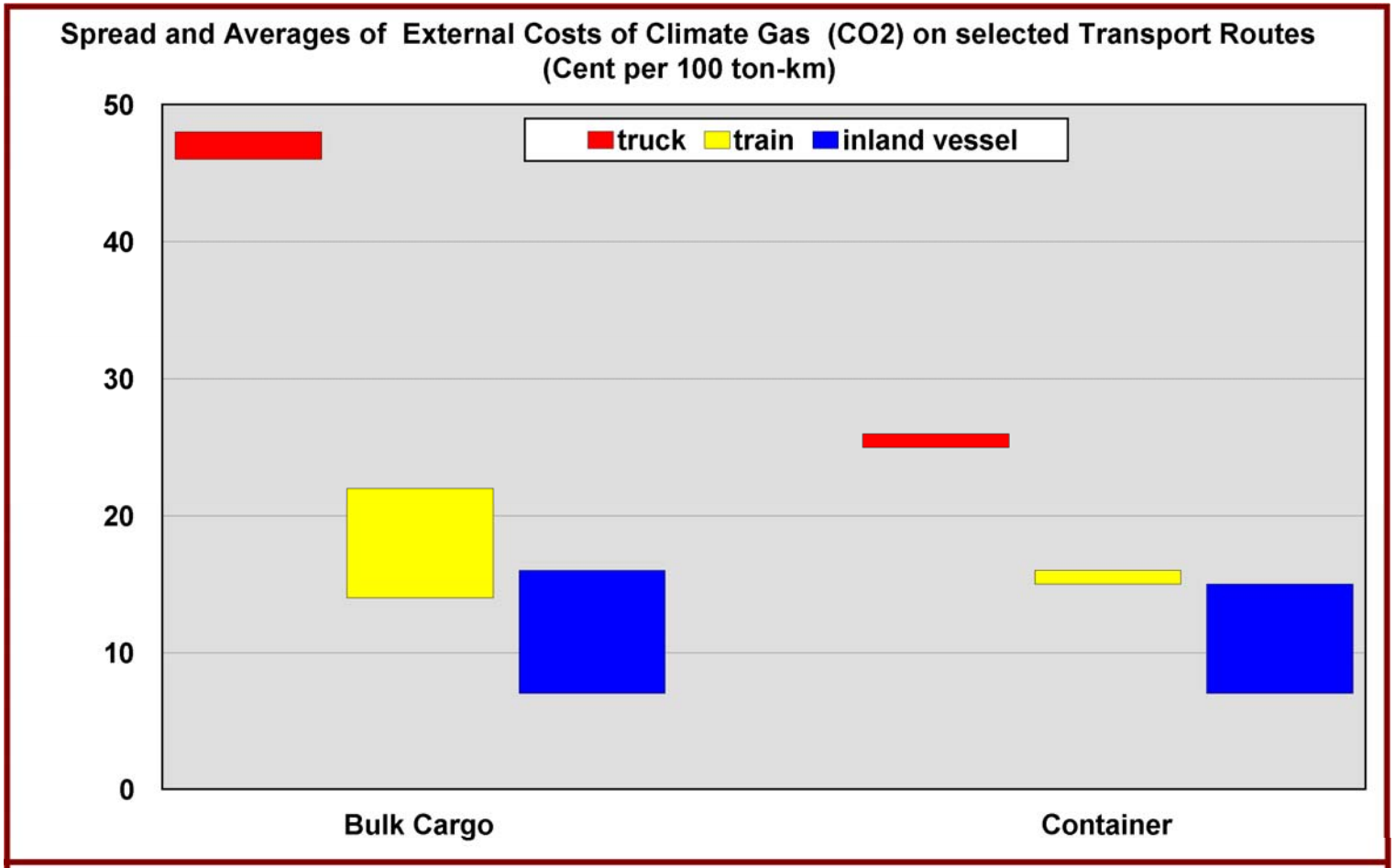
	CT iww/road Rotterdam-Nijmegen (The Netherlands, 120 km)
Total cost	**203 €**
Cost category	**Share of total cost**
Vessel	10%
Staff	5%
Fuel	1%
Handling seaport	22%
Handling inland terminal	14%
Pre-/End-haulage	47%

Source: Planco

Large motor vessel
Dimensions: 110 m x 11,45 m
Load: 208 TEU on 4 layers

Source: Planco

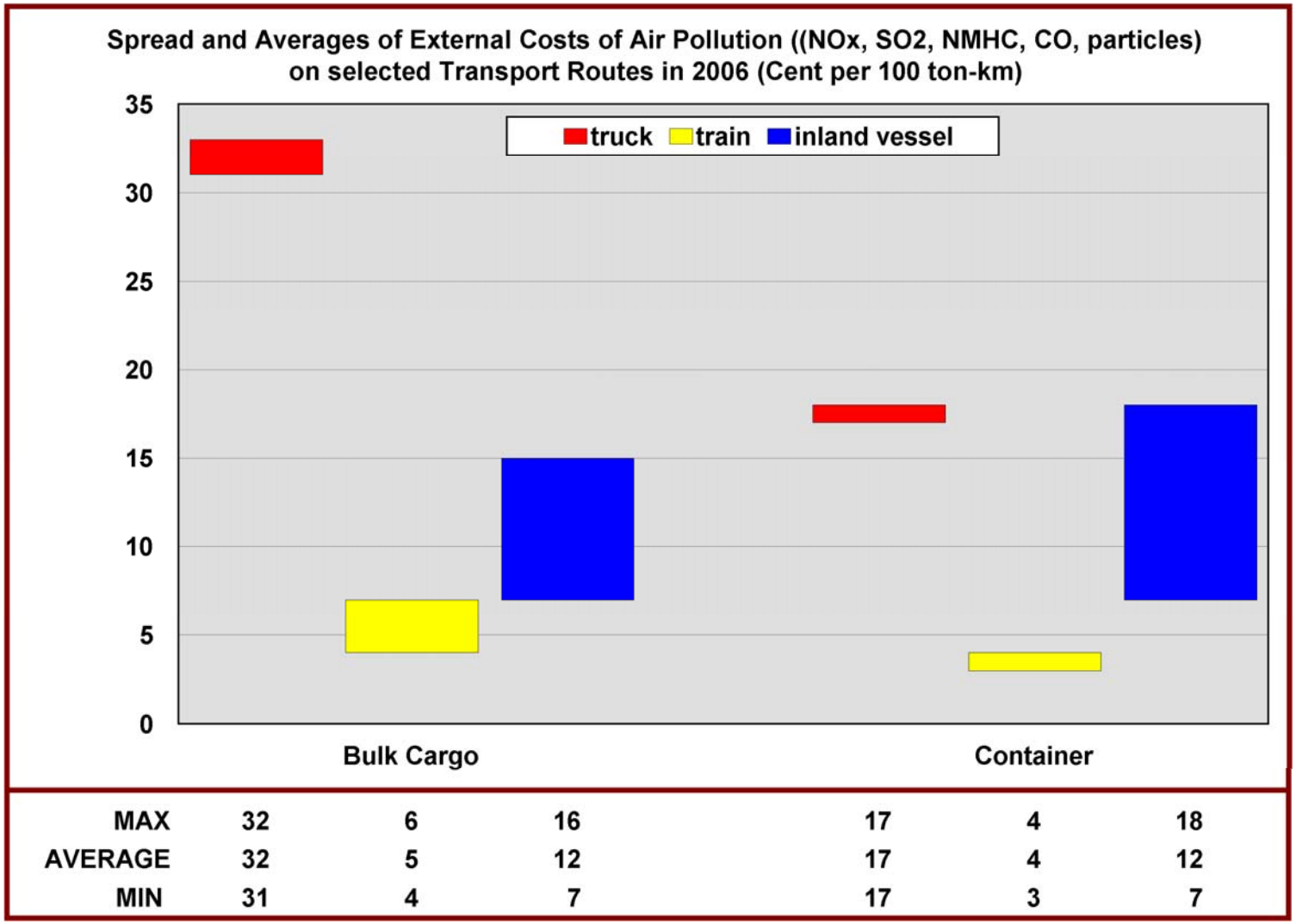
Environmental advantage of IWT – climate gas



MAX	48	22	16	26	17	15
AVERAGE	47	18	12	26	16	11
MIN	46	14	7	25	15	7

Source: Planco

Environmental advantage of IWT – air polluting gases



MAX	32	6	16	17	4	18
AVERAGE	32	5	12	17	4	12
MIN	31	4	7	17	3	7

Source: Planco

Socioeconomic gains inland waterway container transport

Emission	emission reduction compared to truck haulage g/TEUkm
CO_2	856
NO_X	0,82
Particles	0,02
Other	2,53

Source: Planco

- EU 2016: 1.640 mio. TEUkm by barge -> 1.4 mio. tons CO_2
- Modal shift of 20.000 TEU over 150 km - > 17 tons CO_2

Socioeconomic gains inland waterway container transport

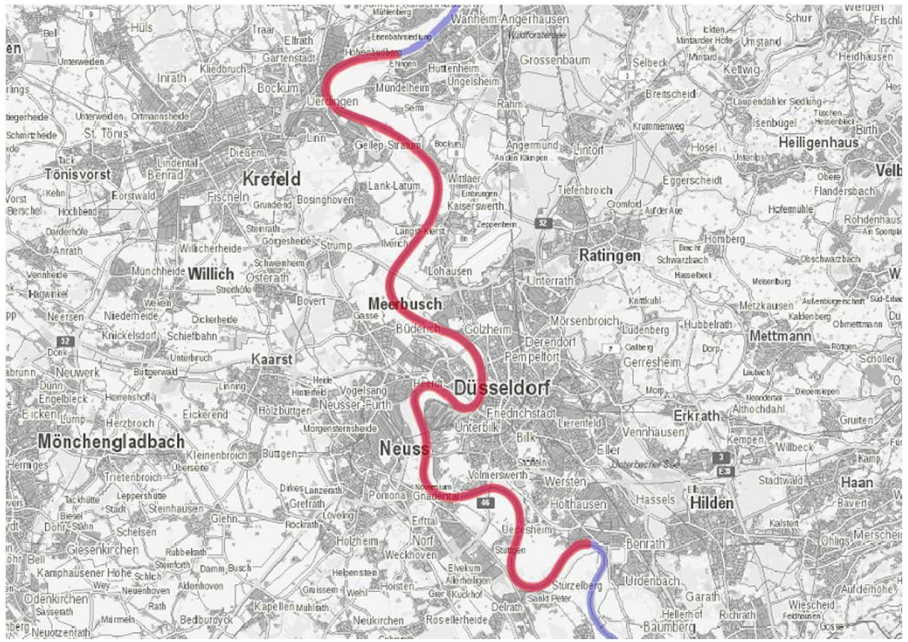
Cost category	CT iww/road Antwerpen-Duisburg (Belgium-Germany, 310 km)	CT iww/road Rotterdam-Nijmegen (The Netherlands, 120 km)
	social cost savings compared to truck haulage € / TEU	
Climate Change	9,59	7,46
Air pollution	0,06	0,05
Accidents	0,84	1,43
Total	**10,49**	**8,94**

Source: Planco

Source: Planco

Project evaluation
German Federal Transport Infrastructure Plan

Deepening of navigation channel at Lower Rhine



Source: German Federal Ministry of Transport and Digital Infrastructure, <www.bvwp2030.de>

Projektnummer	W 27
Bundeswasserstraße	Rhein
Bundesland	Nordrhein- Westfalen
Netzkategorie	A

Lage	von km 722,5 bis km 769
Planungsstände	Vorplanung
Verkehrsbelastung 2030 (Maximalwert der betr. Streckenabschnitte)	119,6 Mio. t
Ausbauparameter	Vergrößerung der Fahrrinnentiefe (Fahrrinnenbreite 150 m) zwischen Duisburg und Neuss auf 2,80 m unter GlW und zwischen Neuss und Stürzelberg auf 2,70 m unter GlW

Dringlichkeitseinstufung	**Vordringlicher Bedarf (VB)**

Kostenbestandteile	**[Mio. €]**
Haushaltsrelevante Investitionskosten (brutto, inkl. Planungskosten, Preisstand 2014)	201
davon	
Aus-/Neubaukosten	104
Erhaltungs- bzw. Ersatzkosten	97
Bewertungsrelevante Aus-/Neubaukosten (netto, inkl. Planungskosten, Preisstand 2012[1)])	85

Project evaluation
German Federal Transport Infrastructure Plan

		Barwert der Nutzen [Mio. Euro]
Veränderung der Betriebskosten	**NB**	111,657
Fahrzeugvorhaltekosten		-
Betriebsführungskosten (Personal)		-
Betriebsführungskosten (Fortbewegung)		-
Veränderung der Instandhaltungs- und Betriebskosten der Verkehrswege	**NW**	-2,514
Veränderung der Verkehrssicherheit	**NS**	-
Veränderung der Reisezeit im Personenverkehr	**NRZ**	-
Veränderung der Transsportzeit der Ladung im Güterverkehr	**NTZ**	-
Nutzen aus verlagertem Verkehr (aus Transportkosten, Transportzeitkosten u. impliziten Nutzen)	**NV**	-
Veränderung der Lebenszyklusemissionen von Treibhausgasen der Infrastruktur	**NL**	-1,568
Veränderung der Geräuschbelastung	**NG**	-
Innerorts	NGi	-
Ausserorts	NGa	-
Veränderung der Abgasbelastungen	**NA**	39,086
Veränderung der innerörtlichen Trennwirkungen	**NT**	-
Veränderung der Zuverlässigkeit	**NZ**	-
Gesamtnutzen		146,662

Nutzen-Kosten-Verhältnis

Barwert der Nutzen	146,662 Mio. €
Barwert der Investitionen	68,652 Mio. €
Nutzen-Kosten-Verhältnis (NKV)	**2,1**

Source: German Federal Ministry of Transport and Digital Infrastructure, <www.bvwp2030.de>

Support for terminal investment to enable modal shift

Source: Planco

- Forecast of terminal throughput 2025: 64.000 TEU
- Modal shift of additional 50.000 TEU compared to 2010 volume
- 2018: Terminal under construction mainly financed by public grants
- Grant approval based on expected external cost savings of 2.5 mio. € per year

EU IWT policy

EU White Paper: Modal shift of road freight transport over 300 km to rail and waterborne transport

NAIADES II action programme (2014-2020)
"Towards quality inland waterway transport“

- Quality infrastructure
- Quality through innovation
- Smooth functioning of the market
- Environmental quality through low emissions
- Skilled workforce and quality jobs
- Integration of inland navigation into the multimodal logistics chain

TEN-T waterway network / Connecting Europe Facility (CEF)

Thank you!

Source: Planco