

DB Schenker's Green Logistics Program



DB Schenker

HO Essen, Env. Department

Heilbronner Weinmarketing Tag 2010

Schenker at a glance



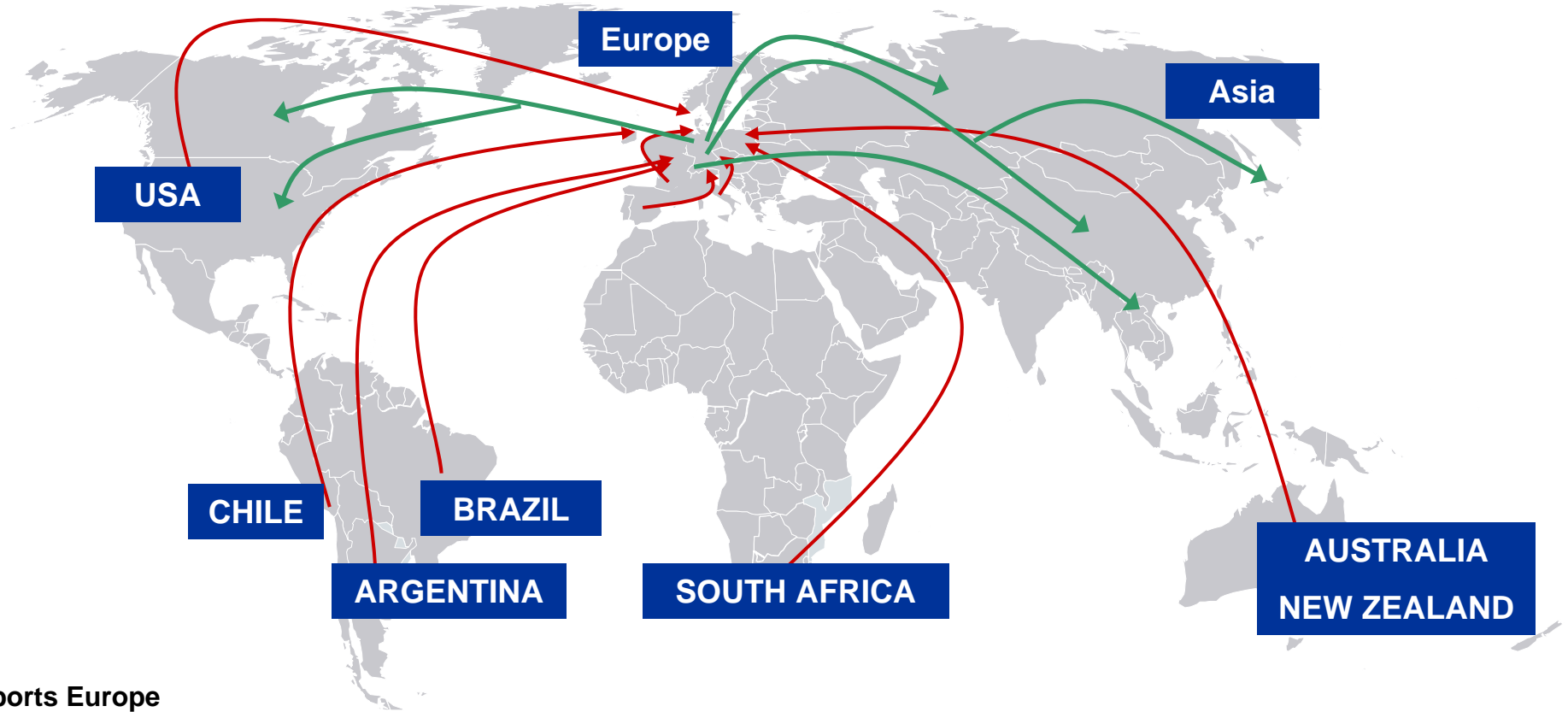
← Rail Freight Transport → ← Freight Forwarding and Logistics →

Rail Freight		Intermodal		Land Transport	Air/Ocean Freight	Contract Logistics/SCM
External revenues (€ bn)		3.8 (+12%)		External revenues (€ bn)		13.2 (+46%)**
EBIT (€ mn)		242		EBIT (€ mn)		367
Employees ('000)		24.3		Employees ('000)		54.9

DB SCHENKER *wine* – the direct route from wine-cellar to customer

- Own DB Schenker-offices with in wine dedicated experts in all important wine production and consumption regions of the world
- We can offer you worldwide transportation, integrated logistics services with our DB Schenker network, warehousing as well as distribution and we can solve your documentation issues
- Our motto: Your enjoyment – our commitment!



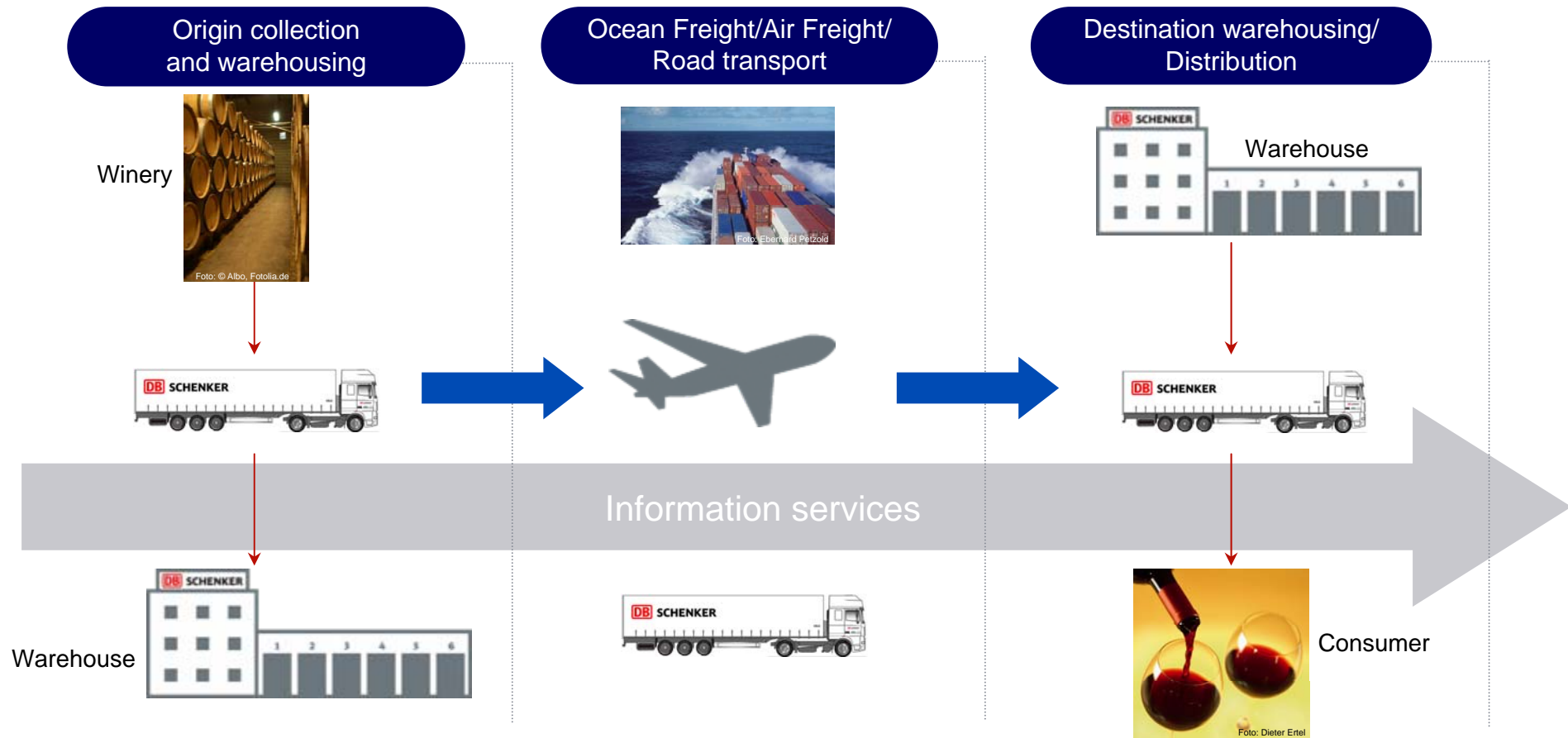


— Imports Europe

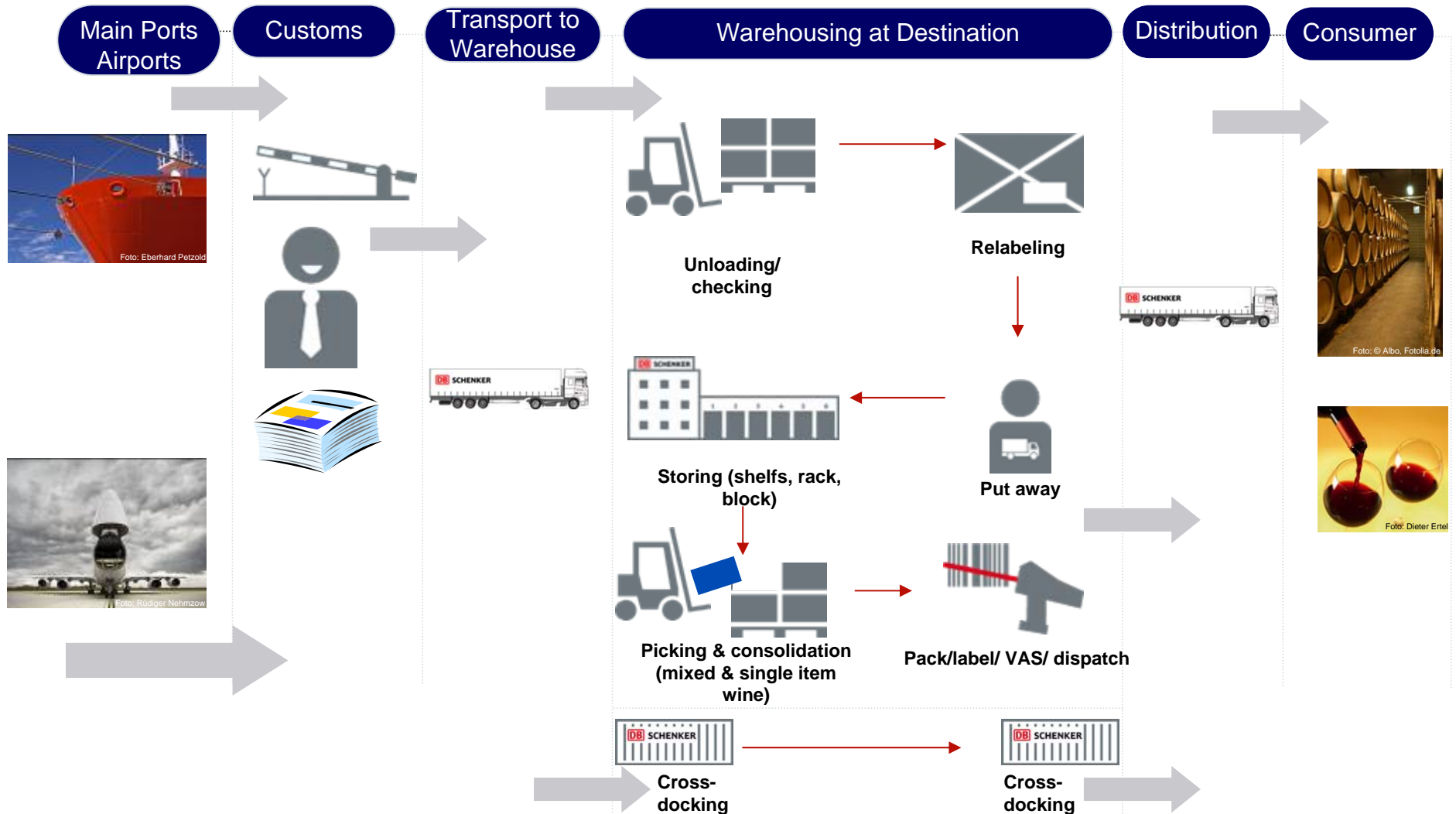
— Export Europe

Source: DESTATIS/Statistic Bundesamt

Wine logistic information services



Supply chain – from wine-cellar to customer



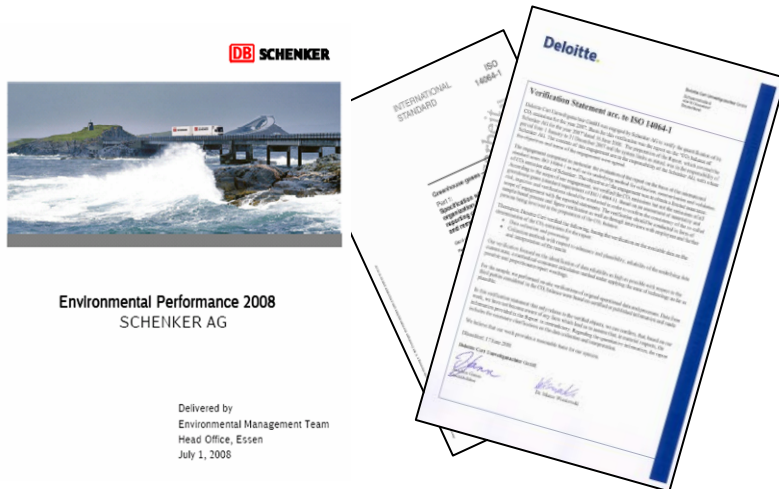
...that your cargo arrives when required and in best condition.



Milestones in Schenker's Environmental Policy

- **Research of CO2 emissions of all Schenker services (land, air, ocean including terminals)**
- **Development of measures for CO2 emission reductions (German target: 20% until 2020) and energy savings**
- **CO2 footprint advice on selected transport routes**
- **CO2 reduction projects with preferred carriers (speed reduction program with Hapag Lloyd)**
- **CO2 reduction projects/pilot studies with key account clients**
- **Pilot Study on alternative fuels of the second generation**

DB and DB Schenker publish environmental reports on a regular basis



DB Schenker Environmental Performance Report 2008

- Summary of DB Schenkers' worldwide environmental activities and CO₂ footprint
- ISO 14064-1 Certification for CO₂ Footprint calculation by Deloitte
- Report on European ISO 14001 Certification, Extension to region auf Asia und Americas is planned

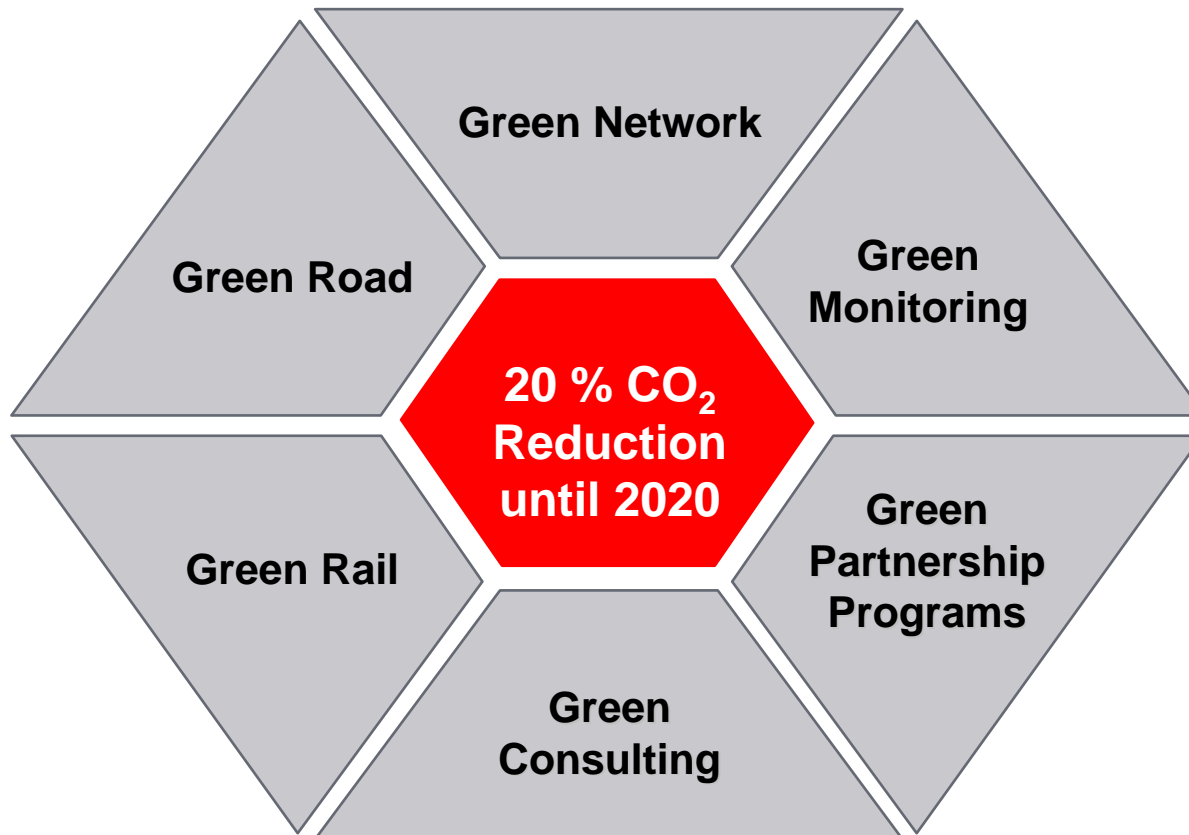


DB Sustainability report 2009

- Publication of sustainability and future approaches of DB AG- Documentation of responsibility towards employees, customers and capital markets
- Certified by GRI standards
- First report ranked #12 of all German Sustainability reports in 2007 and even #1 for transport and logistics companies

New climate saving program 2020 – Components for less CO₂ in land, ocean and air transportation

New goal: Between 2006 and 2020, DB AG decided to reduce specific CO₂-emissions by 20%



Flagship project Green Road is a measurement bundle for emission reduction



Green Road

- Reduction of specific CO₂-emissions of DB Schenker land transport through driver training project (20,000 drivers to be educated in fuel-efficient driving until 2014)
- Pilot DB Schenker Sweden: Cutting of CO₂-emissions until 2020 by 50%

Green Program in Sweden based on 7 measurements (triple helix cooperation)

1. Fuel-efficient driving (Eco-driving)
2. Less speed
3. Fleet modernization
4. Better fuels
5. More combined traffic
6. ‚Public transportation systems for goods‘
7. New solutions for city logistics



“We are able to offer green transport on the road”



Our Green Networks optimize transport modes according to economical and ecological standards



Green Networks

- Reduction of specific CO₂ emissions by modal shift of transports towards environmental-friendly modes and alternative transport offers by DB Schenker
- CO₂ reduction statements for customers **and** DB Schenker

“We optimize our networks and customers’ supply chains towards ecological and environmental standards”

Examples for our ‘Green Networks’

- Combined traffic/ Port Hinterland traffic
- Trans Eurasia Express (Asia-Europe by rail)
- DB SCHENKER *skybridge*
- Green customer projects
- Green Consulting – Advice on emission reduction options
- Green Monitoring – Subcontractor Cooperation
- EcoTransIT as a global calculation tool



Our Green Monitoring and Green Consulting programs integrate our customers and subcontractors



Green Monitoring

- Regular evaluation of subcontractors
- Green partnership with preferred carriers (workshops, evaluations, research and realization of CO₂ reduction measures)



"We integrate our subcontractors in order to reduce the overall CO₂- footprint of our transports and to become more sustainable"



Green Consulting

- Emission calculation for customers
- Footprint analysis and advice
- Restructuring of customer's supply chain



"We are able to analyze and optimize our customers' supply chains by economical and environmental criteria"



Emissions of Transport Modes

CO2 average emissions*

Air	Ocean > 5.000 TEU	Barge	Rail [°]	Land Transport 3.5 – 40 to 89 g/tkm
665 g/tkm	8.5 g/tkm	35 g/tkm	24-42 g/tkm	

*) Source: IFEU Institut, Heidelberg/Germany
Average emission data valid for Europe/developed countries

[°]) depending on the share of
electrical traction and the
country's „electricity mix“

Other emissions ocean shipping*

SO2	NOx
1,5-2 g/TEUkm	2,1-3 g/TEUkm

*) Schenker's preferred carriers

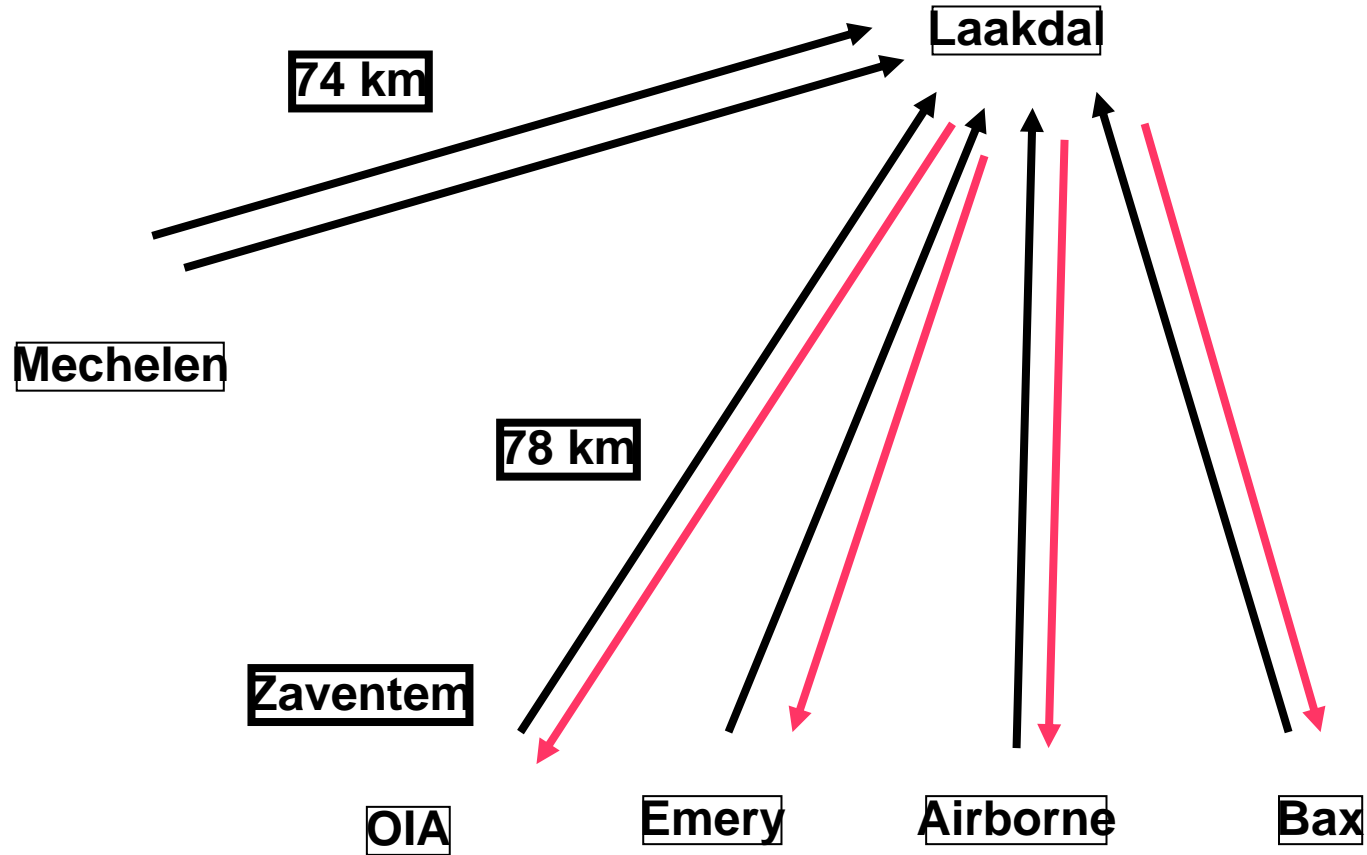
EU Emission Standards for Heavy Duty Diesel Engines

	Law from	NOx	PM	HC	CO	g/kWh
Euro 0	1990	14,4	-	2,4	11,2	
Euro 1	1993	8,0	0,36	1,1	4,5	
Euro 2	1996	7,0	0,15	1,1	4,0	
Euro 3	2000	5,0	0,10	0,66	2,1	
Euro 4	2005	3,5	0,02	0,46	1,5	
Euro 5	2008	2,0	0,02	0,46	1,5	

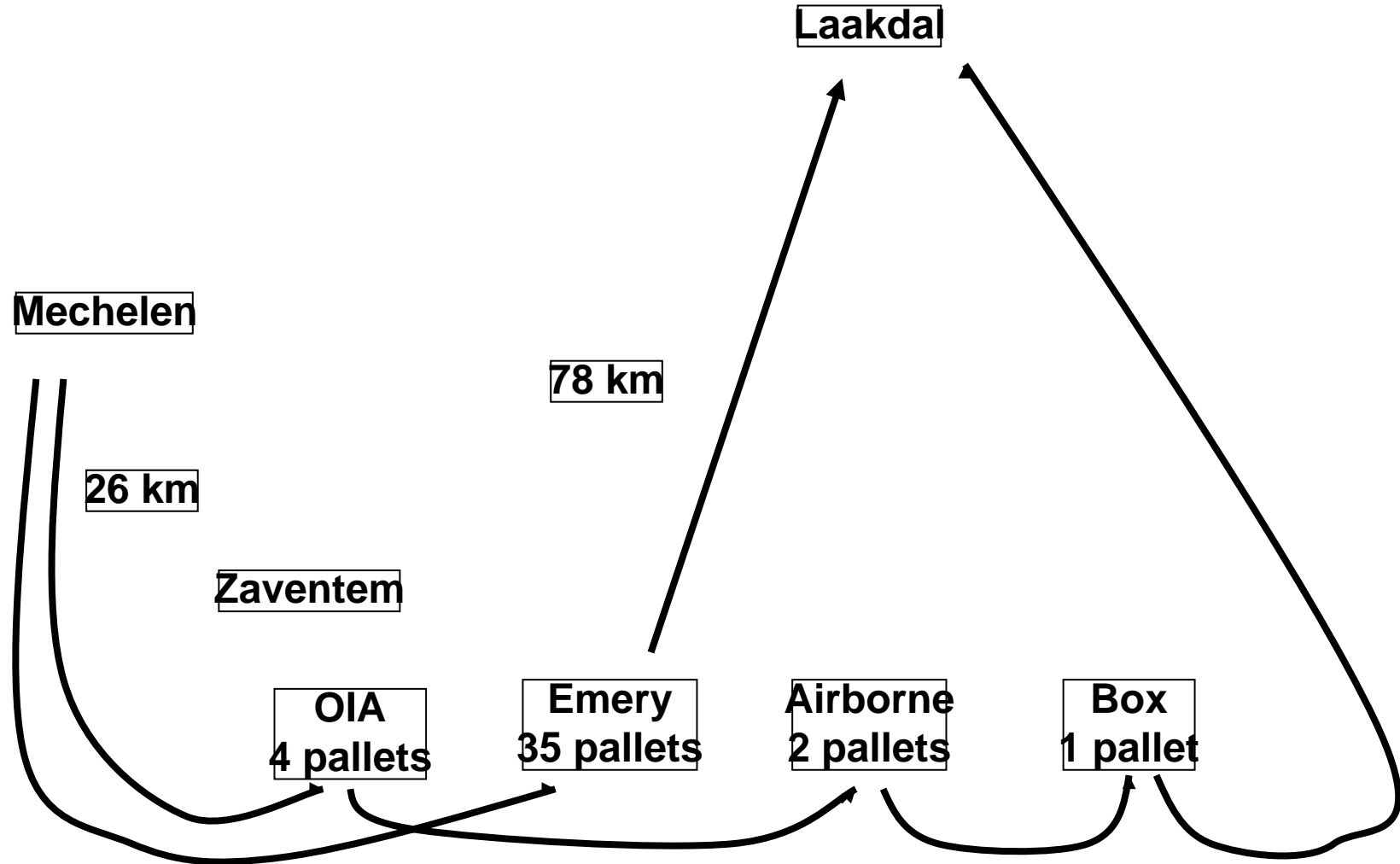
NOx – Nitrogen oxides, PM – Particulate Matter, HC – Hydrocarbons, CO – Carbon monoxide

Emission Reduction Structure & Options

Reduction - Structural Paths and Methods	Reductions/Savings in CO2 Emissions	Transport Time increase/decrease Costs Increase/decrease
<u>Production Sites:</u> <ul style="list-style-type: none"> • Shift closer to the customer's market(s) 	100% per transport	
<u>Long-haul Transport:</u> <ul style="list-style-type: none"> • Shift from Air to Air/Ocean ("Skybridge") or from Air to Ocean – with the option of additional speed reduction; • Shift from Air to Train or Barge (continental) 	Per Route: <ul style="list-style-type: none"> • up to 50% on longhaul • 1/80 per tkm (98.75%) + additional 30% • up to 1/20 per tkm (95%) 	
<u>Distribution Structure:</u> <ul style="list-style-type: none"> • Shift from Truck to Train or Barge; • Shift from direct truck services to consols/groupage 	Per Route: <ul style="list-style-type: none"> • up to 75% • see example attached 	
<u>"Green" truck transport measures (technical and organisational):</u> <ul style="list-style-type: none"> • load factor • driver training • alternative fuels 	see overview attached	



Today's system customer case study



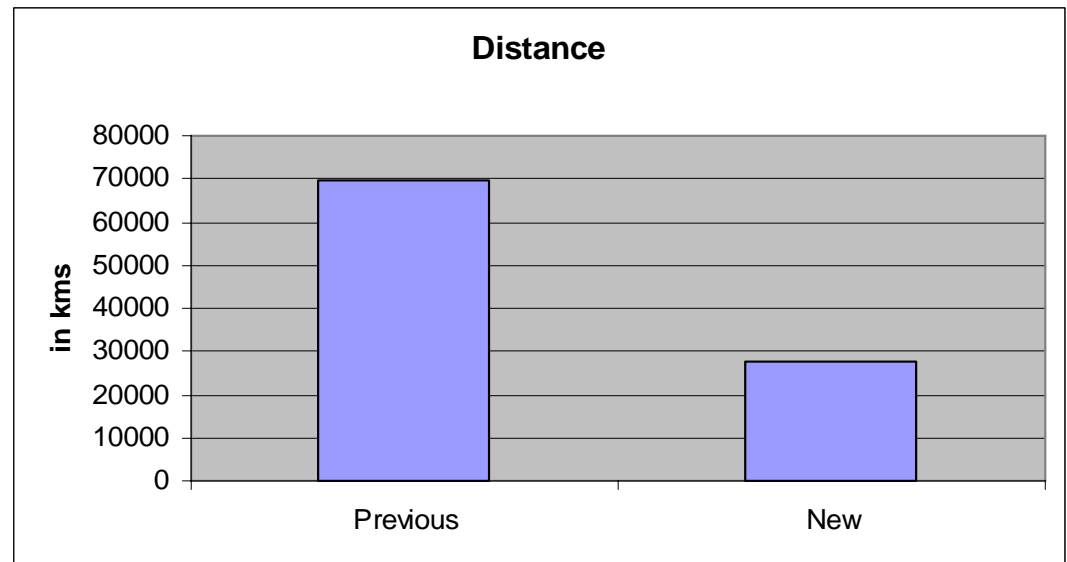
Distance reduction customer case study

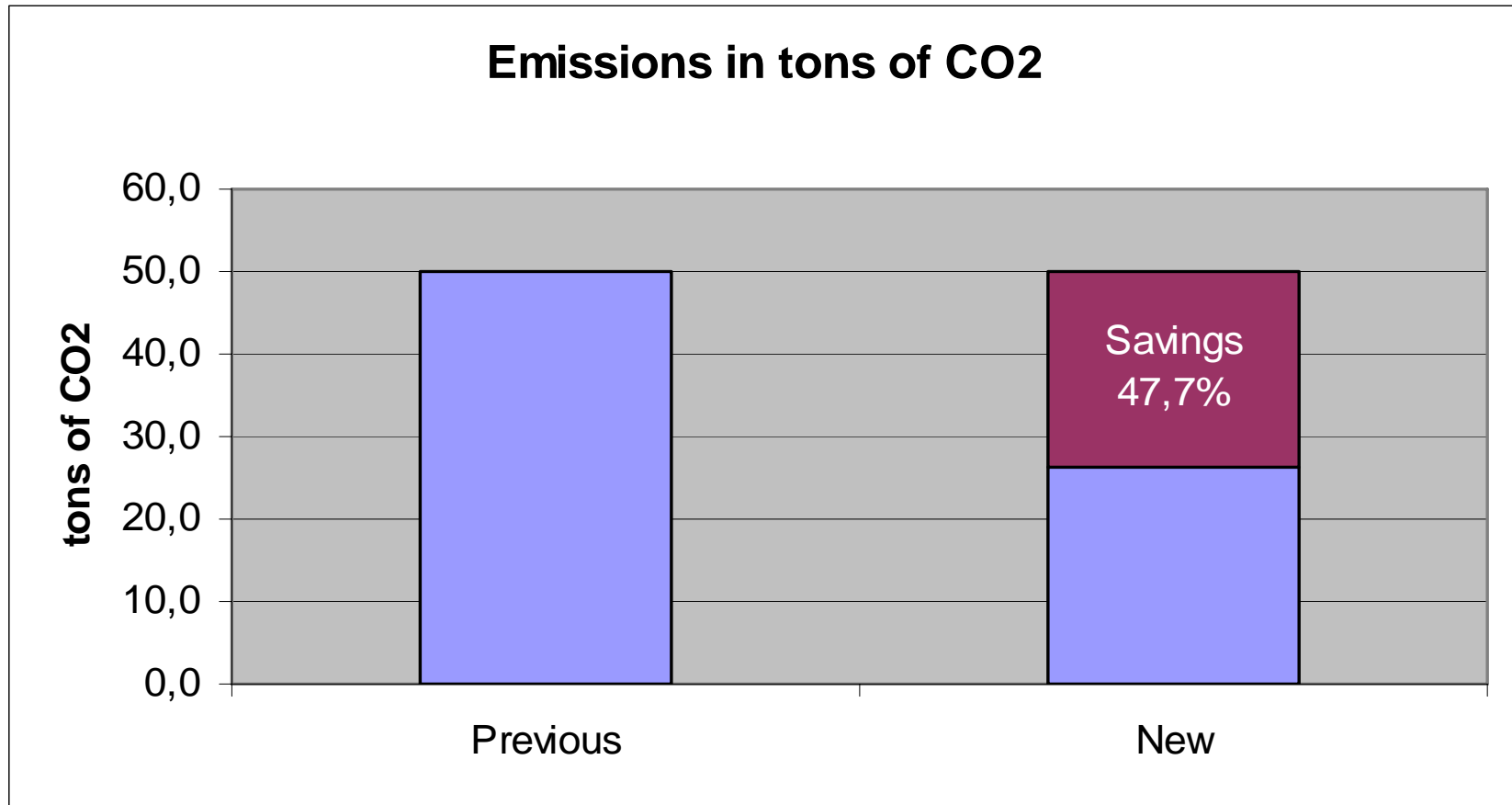
Total distance for a 6 month period

Previous system: 69 448 km

Today's system: 27 664 km

Savings: 41 684 km = 60%





Pre-/On-carriage Technology Measures

Option	Reduction Potential*
Tractor Aero Profile & Features	7.1%
Trailer Aerodynamics	3.8%
Wide-Based Tires / Reduction of rolling resistance	2.6% 8-10% (Continental AG)
Auto Tire Inflation	0.6%
Vehicle Weight Reduction	1.8%
Low Friction Lubricant	1.5%
Hybrid Technology	up to 25% (city)
Biodiesel	up to 20%

Source: Center for Clean Air Policy, USA (referred to: DVZ Climate Summit Berlin, 21.11.2007)

Pre-/On-carriage Organisational Reduction Measures

Option	Reduction Potential*
Idle Reduction (APU)	8.9%
Speed Reduction (f.e., Schenker Sweden in longhaul traffic)	13.6%
Driver Training	3.8%
Modal Split: Shift from Road to Rail	up to 80%**)

Source: Center for Clean Air Policy, USA (referred to: DVZ Climate Summit Berlin, 21.11.2007)

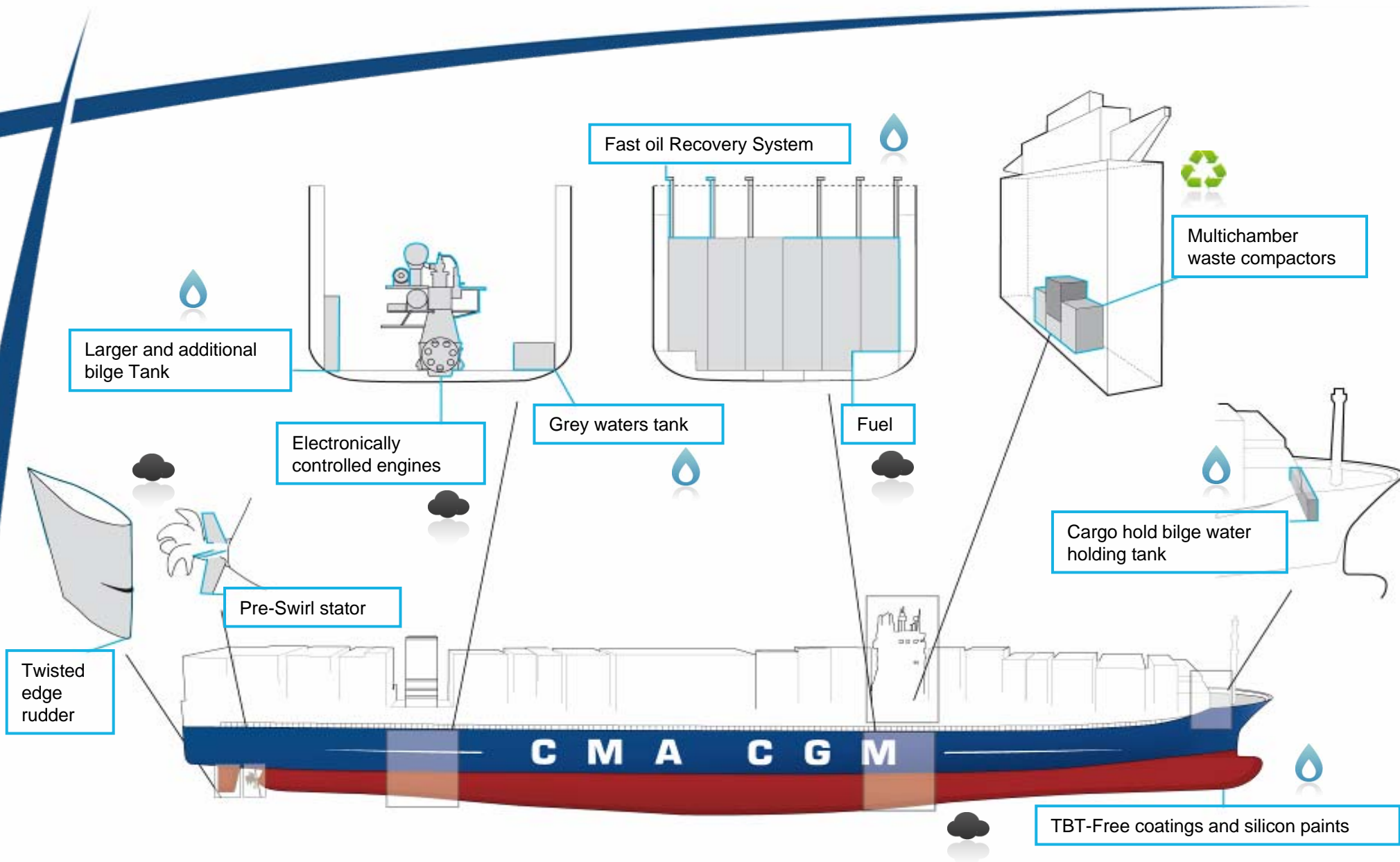
*) The percentages refer to full application throughout the services/emissions in question

***) This is the biggest reduction potential as rail traffic only accounts for 8% of CO2 emissions and road traffic for 79% of CO2 emissions in freight transportation.

Project „Speed Reduction“ with Hapag Lloyd

Routes	Ships	Route Speed of 23.5 kn
Loop 1	8 ships x 6,570 TEU	
Europa - Asien	Average speed 23.5 kn	
	6.25 loops per year 58.4 days each	
	337,500 TEU/year	
	4.354 tons CO2 per TEU/year	
Routes	Ships	Speed reduced Route to 20 kn
Loop 2	9 ships x 6,750 TEU	
Europa - Asien	Average speed of 20 kn	
	5.55 loops a year with 65.8 days each	
	337,162 TEU/year	
	3,017 tons CO2 per TEU/year	
Extension of loop time	7 days (3.5 days per loop)	
CO2 Emission Reduction	ca. 30%	

To preserve the marine environment: Eco-friendly vessels



To develop Eco-friendly solutions



CMA 417902 8
45G1

MAX GROSS	70,500 KG
	154,620 LB
TARE	7,000 KG
	15,400 LB
NET	63,500 KG
	140,220 LB
CU. CAP.	76.4 CBM
	2,700 CU FT

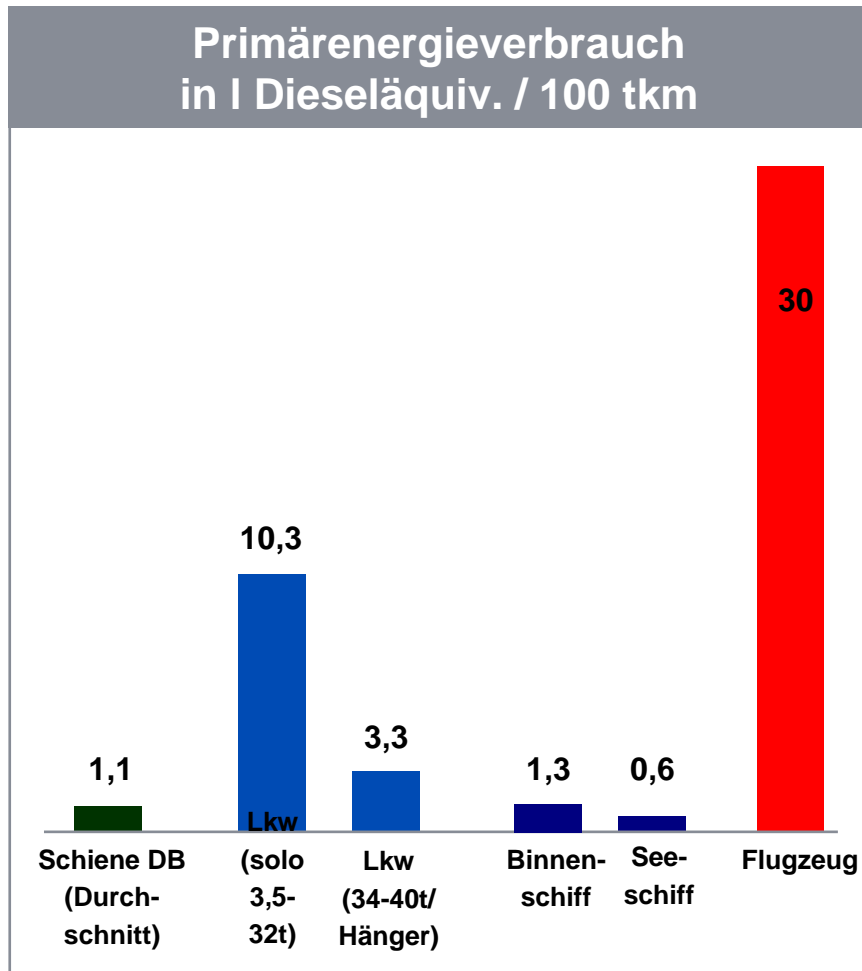
advanced container
light steel

CMA CGM

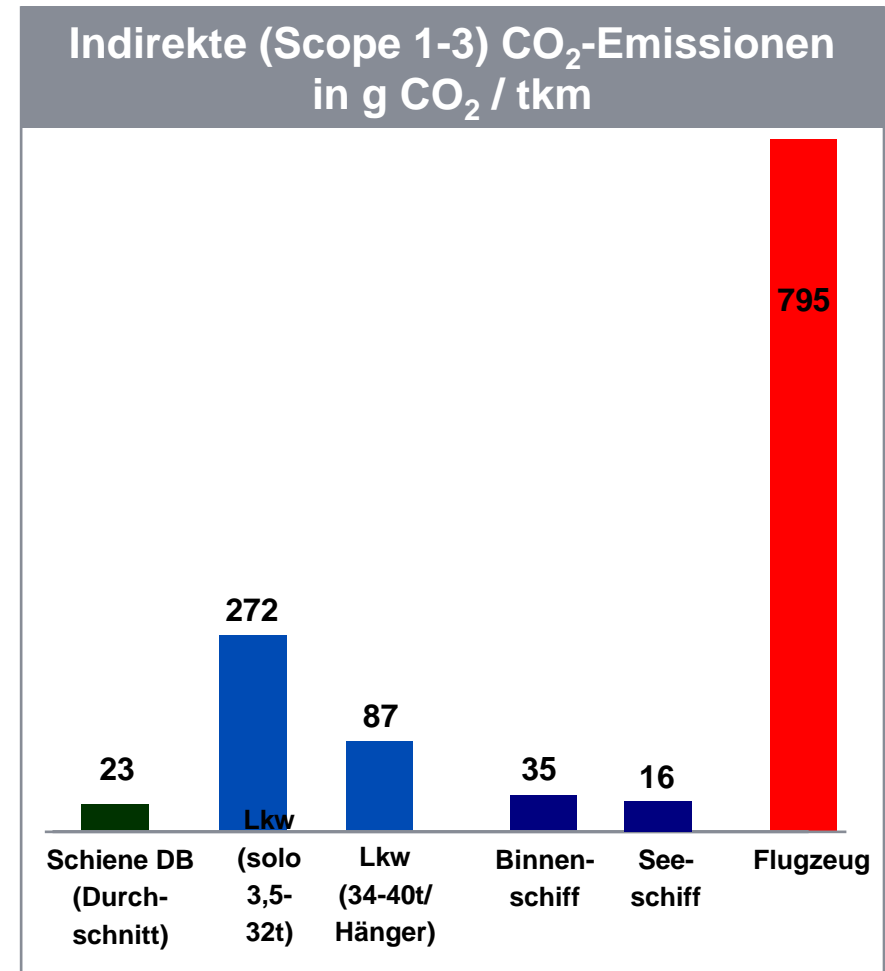
containe
bnbi loig

- > Pioneer and leader in Eco-containers with bamboo flooring
- A fleet of 80 000 TEUS, representing 10% of owned container fleet
- > A new generation: *Light Steel* containers, as robust but lighter
- > 2 000 low consumption refrigerated containers (3 times less)

Primärenergieverbrauch und CO₂-Ausstoß im Verkehrsträger-Vergleich - statistisch



Quelle: DB AG



Quelle: Tremod 4.17/IFEU, basierend auf Euro 3/50% Auslastung und durchschnittl. Verkehrsleistung auf deutschen Straßenkategorien (gemittelt)

Legal Regulations and Initiatives / EU

Carbon Dioxide: Reduction Necessity to limit global warming to 2°C: 50% to 2050

Kyoto Protocol: 8% compared to 1990 between 2008 and 2012

EU: 20% until 2020 / 30% in case of an international agreement;
concrete targets for Member States to be set up for the period 2013-2020;
integration of air transports in ETS from 2012 and eventually all modes of transports
after 2015

Germany: 40% until 2020 compared to 1990 (Meseberg Climate Protection Target 2007)

Pollution (SOx and NOx) in ocean freight:

SOx reductions: **SECAS** from 1.5% to 1% in 2010 and 0.1% in 2015; global limits from 4.5% to 3.5% in 2012 and 0.5% in 2020 (or 2025, depending on resp. fuel availability); for inland waterways reduction from 1,000 mg/kg to 300 mg/kg / 0.1% in marine fuels by mass in 2010 and 10 mg/kg in 2012.

NOx reductions: emission limits for new diesel engines (since 2000); ongoing discussions in IMO

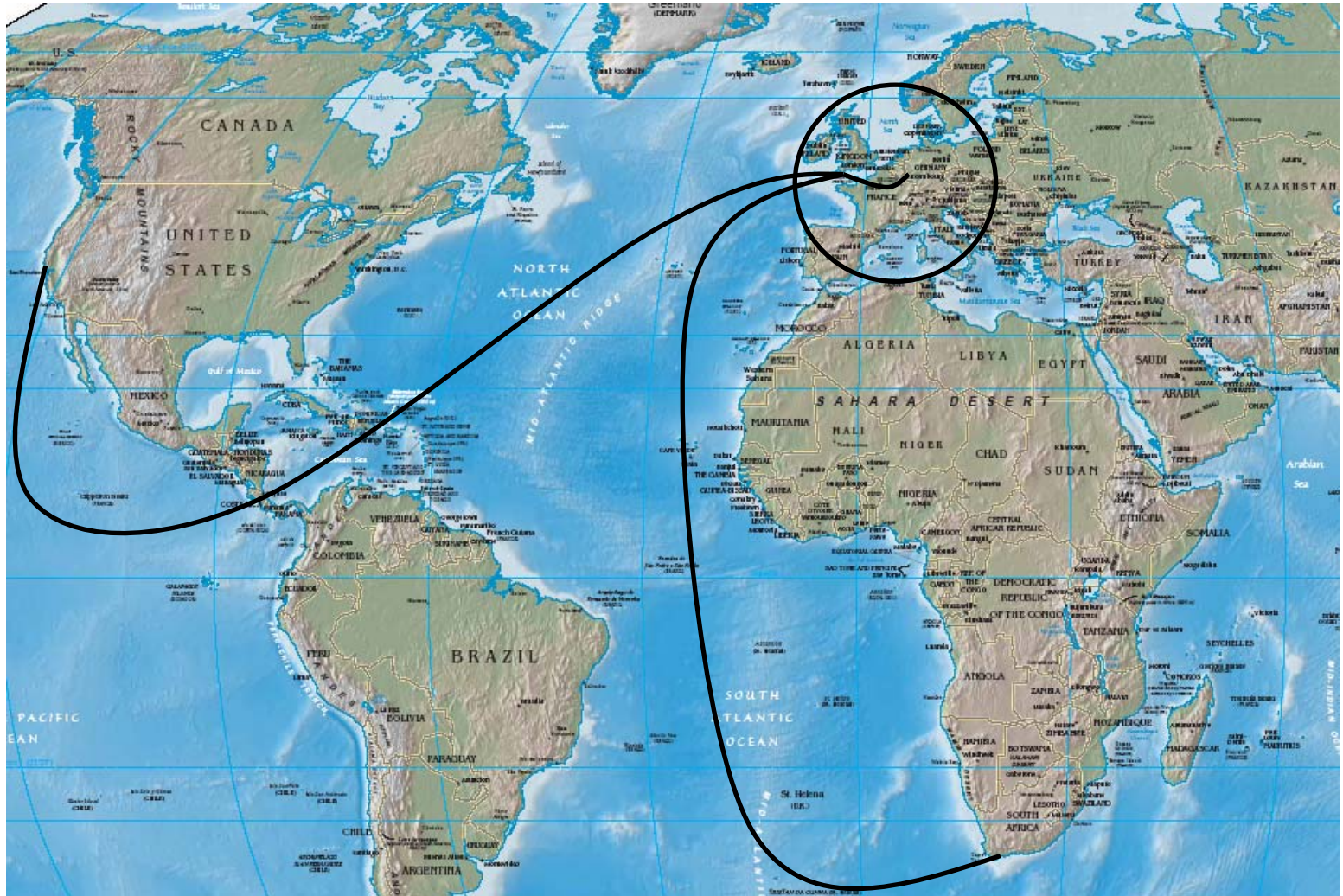
Additional topics for “green” shipping: “cold ironing”, registration in Clean Shipping Index:
<http://www.cleanshippingproject.se/Cleanshippingindex20080626.xls>

„Food miles“ – Vergleich zwischen Lkw und Seeschiff

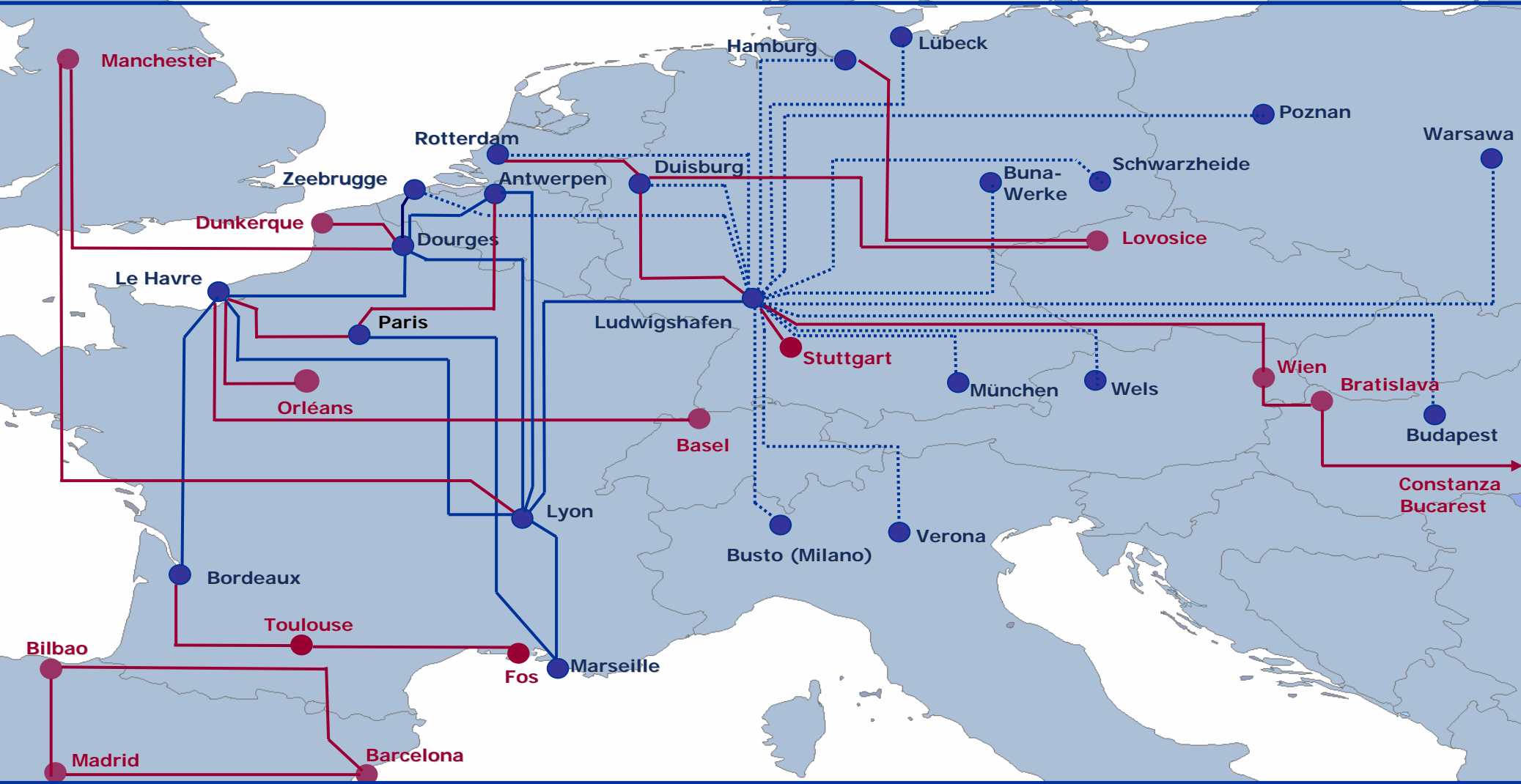
A 20' container with 18,000 litres of wine in flexibags shipped from California or South Africa via Antwerp to Dortmund (by barge) has the same carbon impact as the same amount being shipped from 2,000 km distance of road meaning ocean shipping may afford 8-times the distance



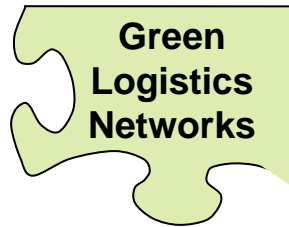
2,000 km road radius



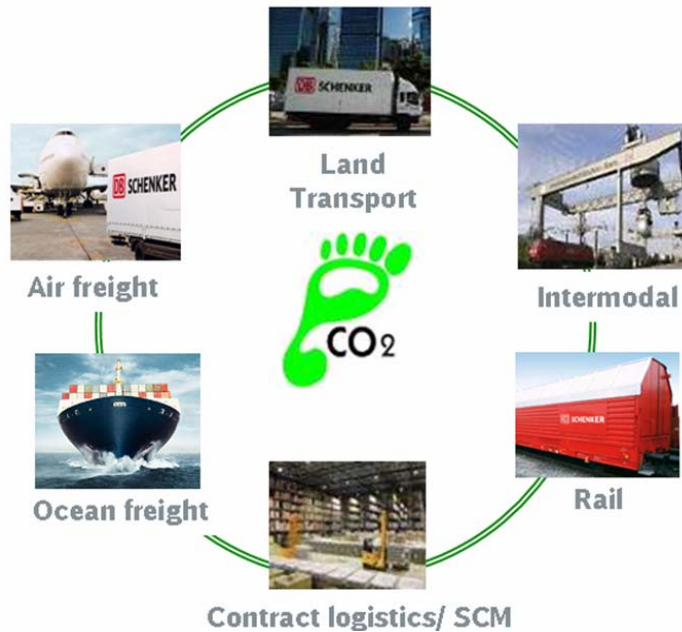
Rail Link Europe : Transport Plan 2009-2011



Our Green Logistics Networks link transport modes according to economical and ecological standards



- Modal Shift of transports towards environment-friendly modes
- Positive effect: Improved carbon footprint for costumers and DB Schenker

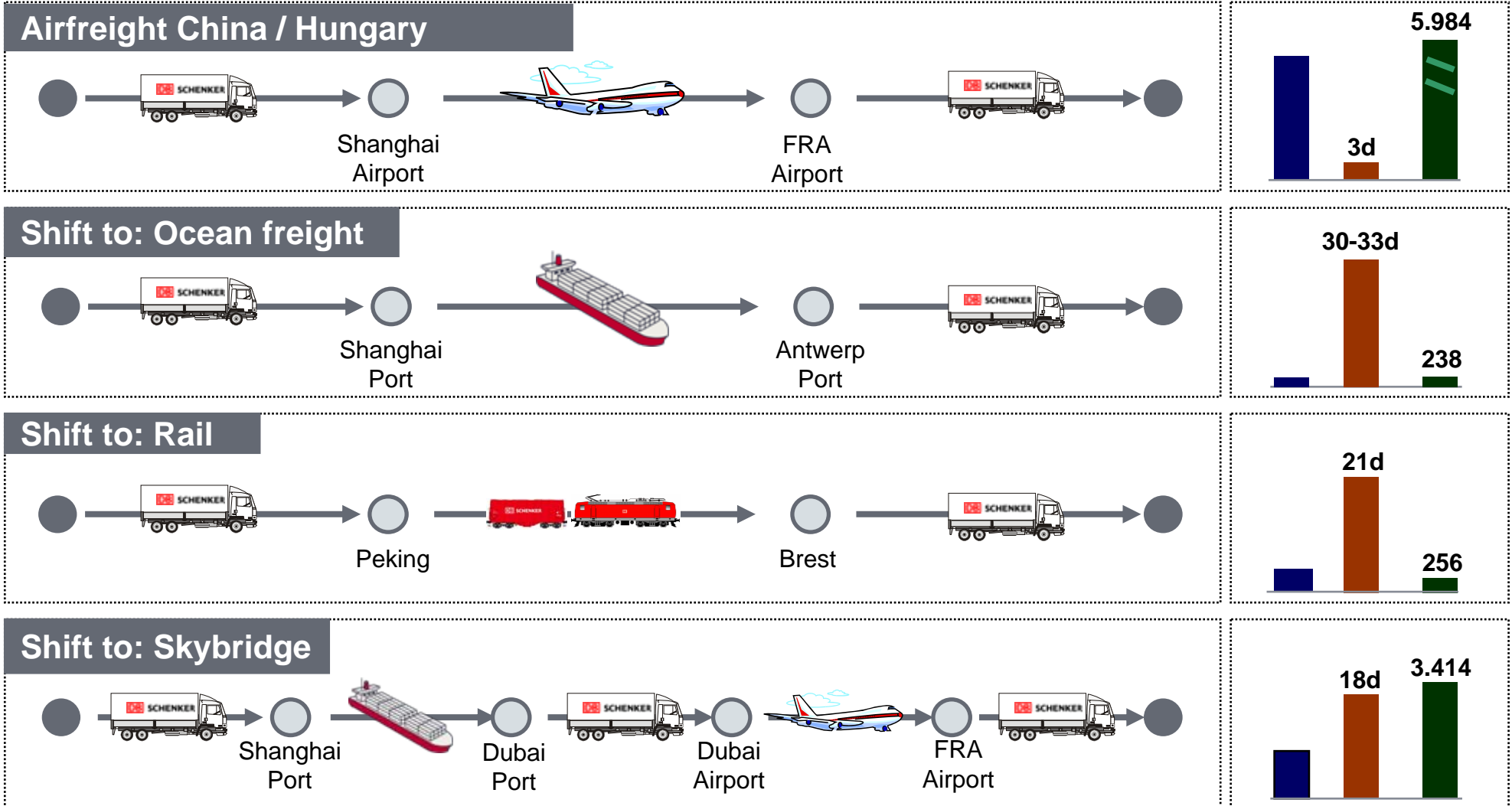


Example of ‚Green Logistic Networks‘

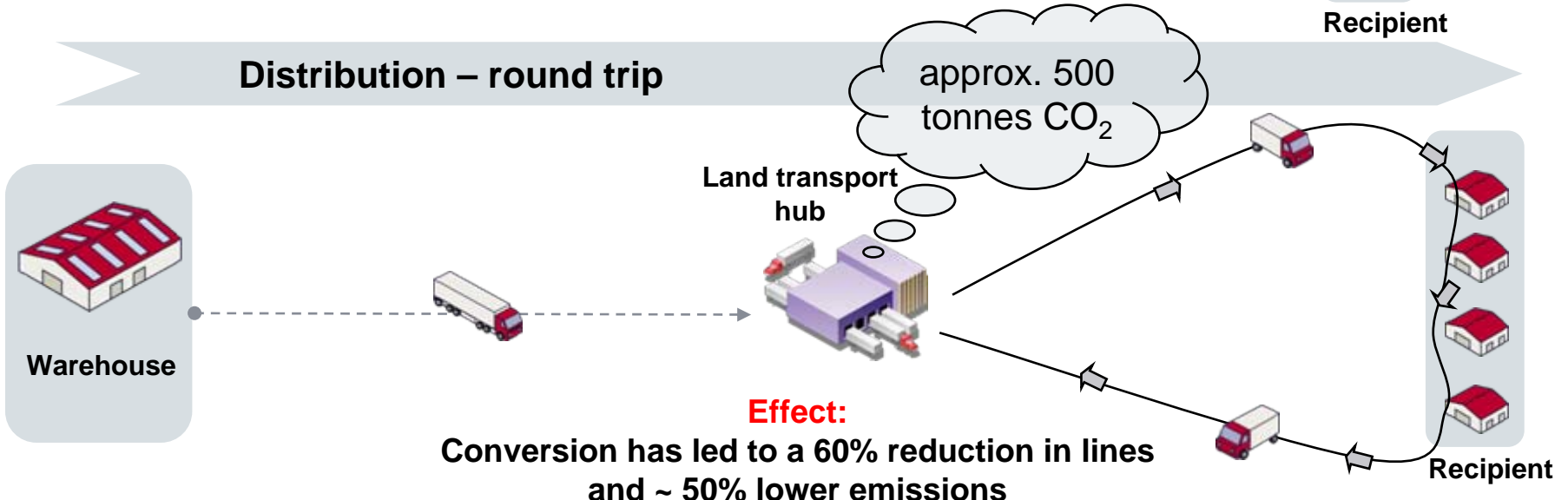
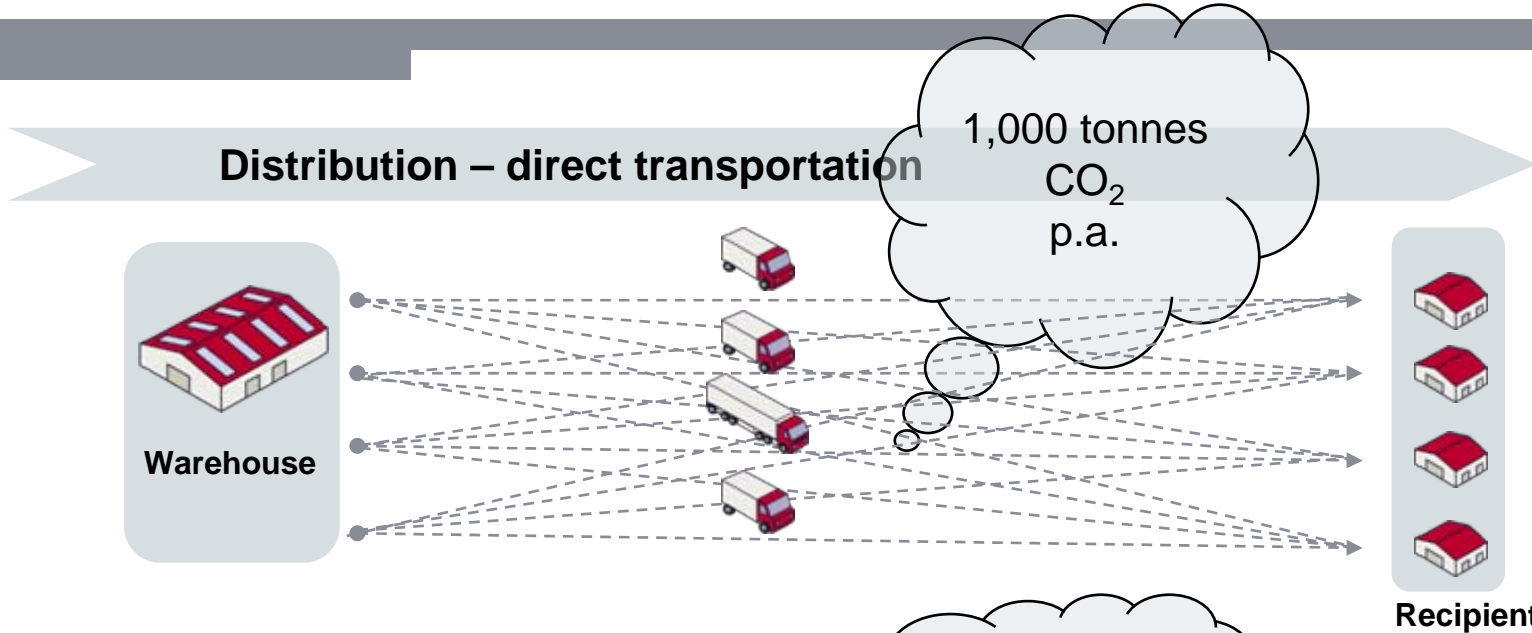
- Combined Traffic
- Albatros Hinterland traffic
- DB SCHENKER *railog*
- Danube Nordics Shuttle
- Railport traffic
- DB SCHENKER *skybridge*
- ‚Green Monitoring‘ – Subcontractor Management
- ‚Green Consulting‘ – CO₂-Guidance for costumers

Example Green Consulting

Comparison: One route, several transport modes



Example from land transport: continuous optimization of the transportation chain has cut costs and CO₂ emissions



Part of Green Networks are the Green Monitoring and Green Consulting initiatives



Green Monitoring

- Regular evaluation of subcontractors
- Green partnership with preferred carriers (workshops, evaluation, research and realization of CO₂ reduction measures)

"We integrate our subcontractors to reduce the overall CO₂- footprint of our products."



Green Consulting

- CO₂-emission calculation for customers
- Analysis of emission-footprint and clarification of reduction options
- Restructuring of customer's supply chains

"We are able to optimize our customers' supply chains by economical and environmental criteria"



Target of Green Terminals' is the implementation of economically-friendly measurements for stationary equipment



- **Reduction and optimization of CO₂-emissions** in existing DB Schenker terminals and terminals under construction
- Implementation of environment-friendly measurements in **existing terminals** only viable in a **limited extent** (e.g. reconstruction of power supply via photovoltaic)
- ▶ Integration of sustainable measurements right from the start of **new-build terminals** worthwhile



CO₂-reduction may be realized by:

- Photovoltaic
- Geothermal energy
- Wind power plants
- Innovative lighting systems
- Architecture and Layout
- Optimization of logistics systems
- Innovative material handling



Facts:

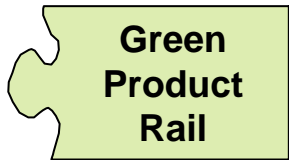
- Location airport Melbourne
- Terminal with 11.000 m³ Logistics- and 2500 m³ Office space
- Contemplation of former 4 offices and 230 employees
- Every day: 300 truck runs, 2.000 t airfreight and 150 oceanfreight-container
- Opening July 2009

Implementierte Umweltmaßnahmen

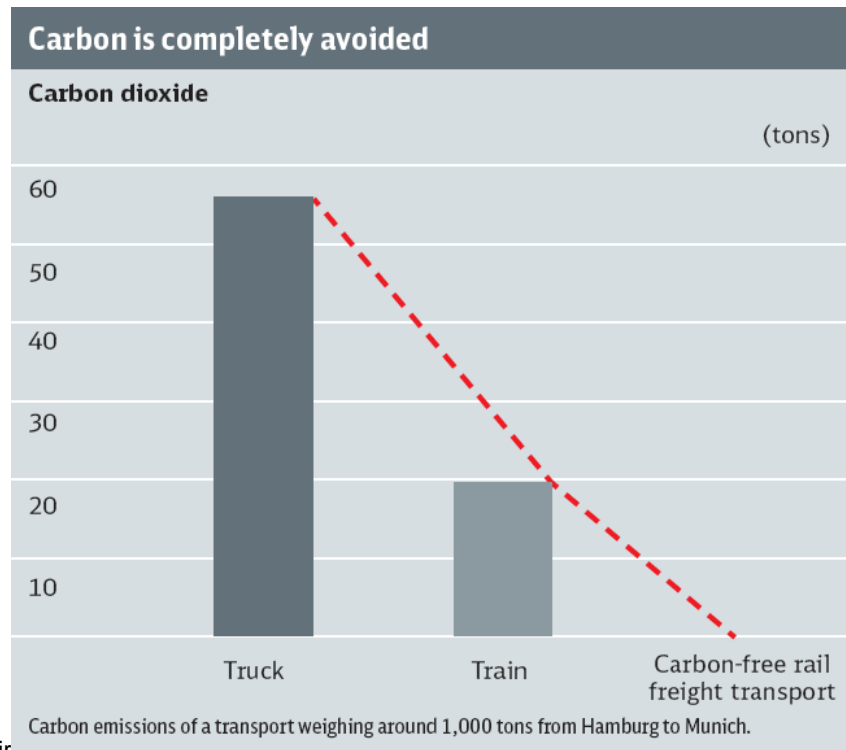
- **Supply of water- and sanitary stations with a 450.000 l rain water tank**
- **Solar power for hot water**
- **Solar power for energy supply**
- **Change of 80% of all forklifts on electronic mode**
- **Reduction of waste by 60% through own recycling programs**
- **Terminal's geographic location** reduces energy usage of airconditioning by 40%

■ **Building complies with Green Star standard, a national not-mandatory standard, which evaluates environmental-friendliness of**

Customers can neutralize CO₂ emissions of their rail transportation by using the green product Carbon-Free Rail



- Rail transportation is already the most environmentally friendly mode of transportation on most routes
- DB Schenker Rail offers carbon-free rail freight, which is completely carbon-free, through the direct purchase of renewable energy from DB Energy
- Customer initiative with positive image factor for customers as well as DB



Harmful CO₂ avoided entirely

(Average CO₂ emissions from transportation of roughly 1,000 t from Hamburg to Munich)

Thank you for your attention

