



Carbon Footprint Management of Logistics Industry in Europe

China Green Freight Initiative International Seminar (2014)

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- ▶▶ Part 1 Motivations for Carbon Footprint Management in Europe
- ▶▶ Part 2 Approaches of Standardisation of Carbon Footprints in Logistics Sector
- ▶▶ Part 3 Applications and benefits of Carbon Footprints: Experiences of Europe





Motives for Carbon Footprint Management

RISKS

Requirement by politics:

- › high impact on local environment (noise, air pollutants etc.)
- › not any CO2 emissions reduction within the last two decades

CHANCES

Requirement by own company:

- › reduction of costs
- › improvement of the competitiveness of the company
- › Image reasons

Carbon Footprint Management

Requirements by customer:

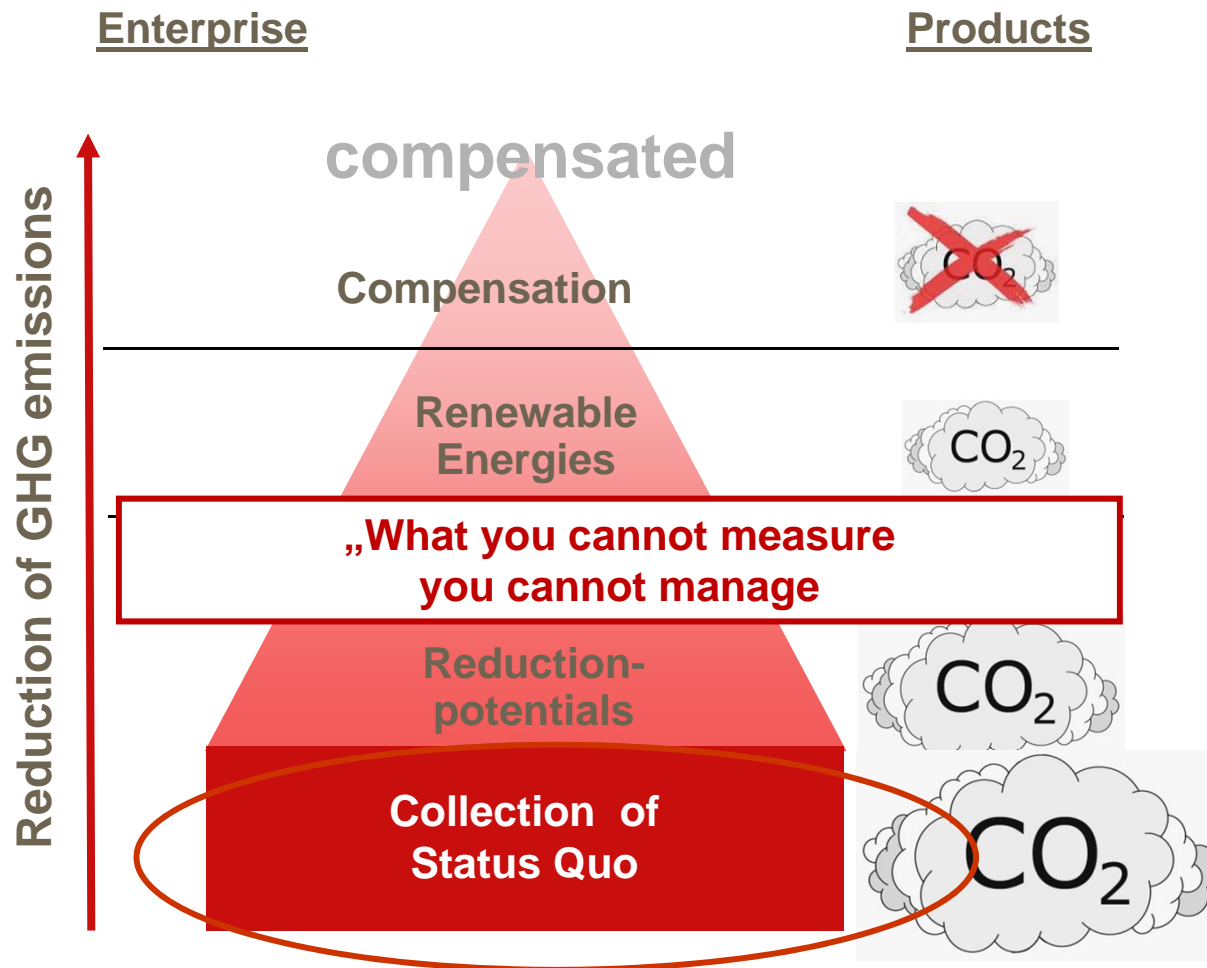
- › corporate Carbon Footprints or GHG mitigation strategies of shippers or customers
- › carbon footprints of Products

Requirement by shareholders:

- › criteria for sustainable company ratings



Carbon Footprint as the Basis of A Goal-Oriented Climate Protection Strategy of Enterprises





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Part 2: Approaches of Standardisation of Carbon Footprints in Logistics Sector

- 1. Background of the European standard EN 16258**
- 2. Standardisation in detail: Which topics should be addressed by a standard?**



Standards existing or in development for Corporate and Product Carbon Footprints

Corporate Carbon Footprinting:

- › ISO 14064-1 “Green-house Gases - Part 1” ISO 14064-1
- › WRI/WBCSD “GHG Protocol: Corporate Accounting and Reporting Standard (Corporate Standard)”
- › Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Product Carbon Footprinting:

- › ISO 14040/44 (Ökobilanz)
- › PAS 2050
- › WRI/WBCSD „GHG Protocol: Product Accounting and Reporting standard“
- › ISO TC 207 „Carbon Footprint of Products“ (Release date 2013) 迹

**Overview
about
Standards**

"Methodology for calculation and declaration of energy consumption and GHG emissions of transport services " (EN 16258)



Scope of the European standard EN 16258 for calculation of transport-related GHG emissions

› Scope:

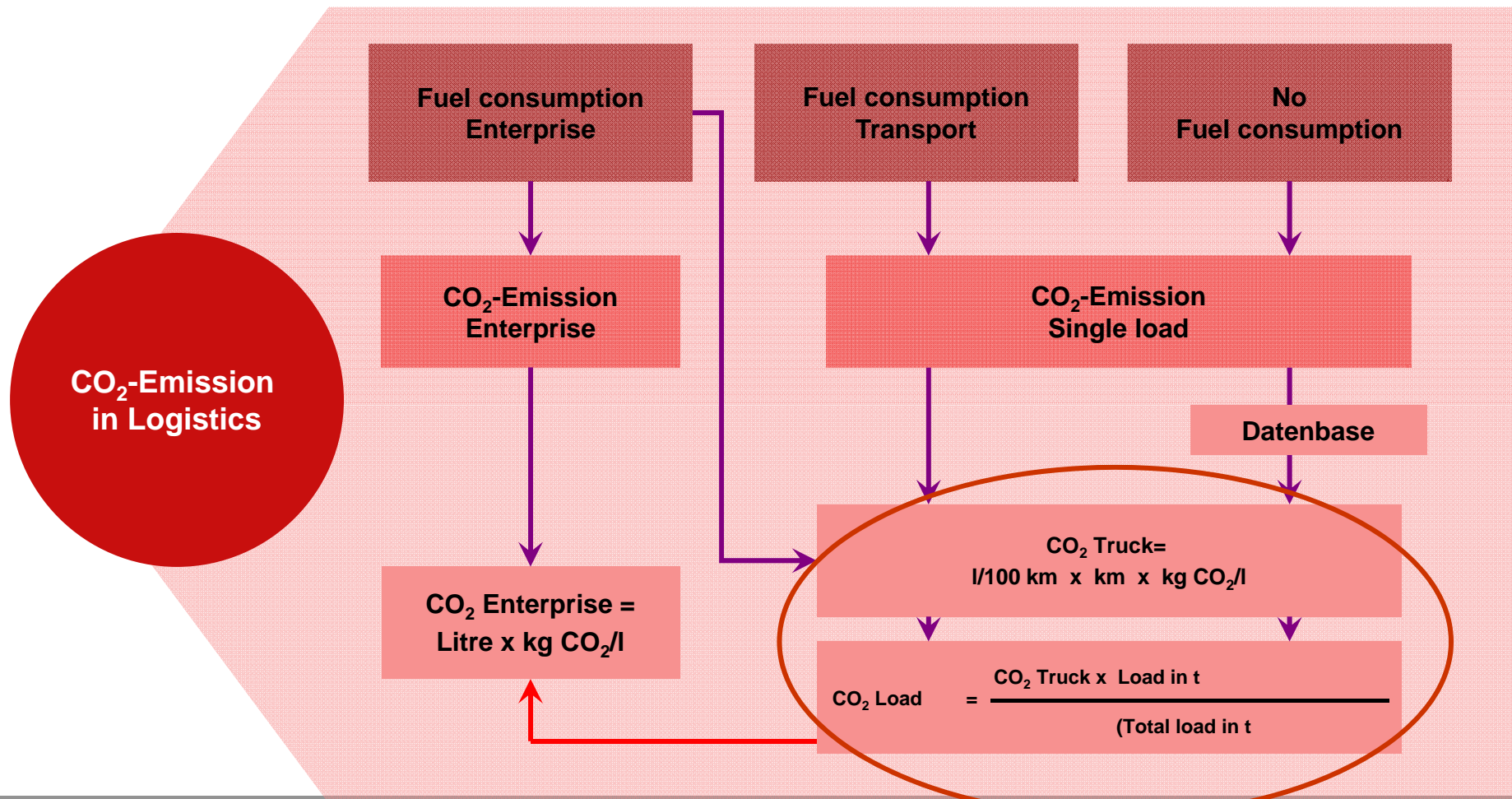
„This standard provides a common methodology for the calculation, declaration and reporting on energy use and GHG emissions of transport services. It specifies guidelines, general principles, definitions, system boundaries, measurement rules (allocation), calculation methods, and data sources recommendations.“

- ⇒ Harmonised methodology for calculation and declaration on energy consumptions and GHG emission of transport services
- ⇒ Definition of system boundaries
- ⇒ Requirements for allocation rules
- ⇒ Recommendation of sources

**Standard
EN
16258**



Calculation of CO₂ Emissions for Trucking: Approach in Principle





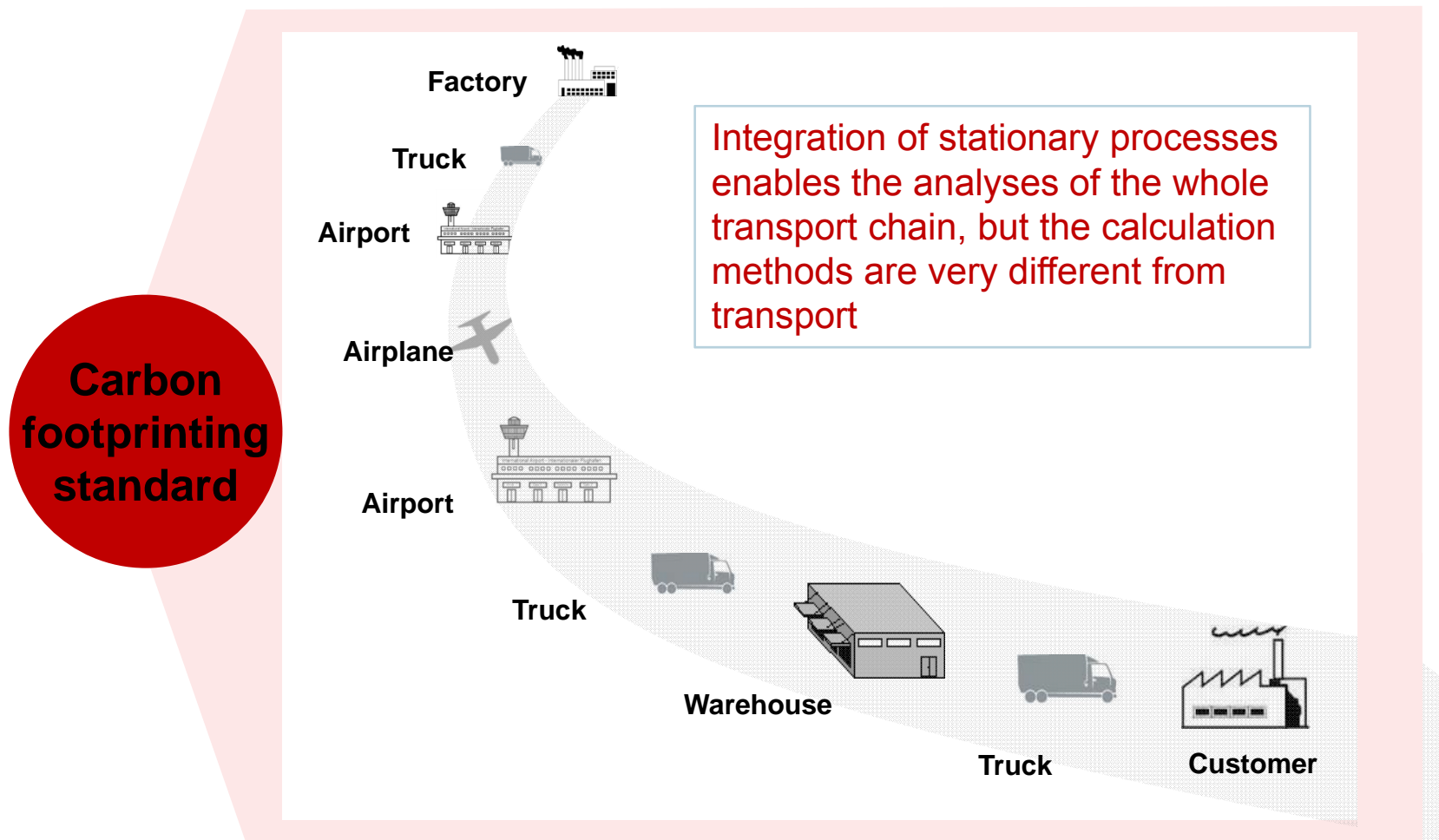
Questions have to be answered by a carbon footprint standard for freight transport

- Which parts and processes are included or excluded?
- Which Methodology is allowed for calculation of GHG emissions of freight transport?
- Which data sources can be used for the calculation, which data sources must not used?
- How to allocate the GHG emission of vehicles to a single shipment?如何
- Which information has to be provided together with the results of GHG emission calculations?
- Shall a third party certification be obligatory?

... and answers of the standard EN 16258

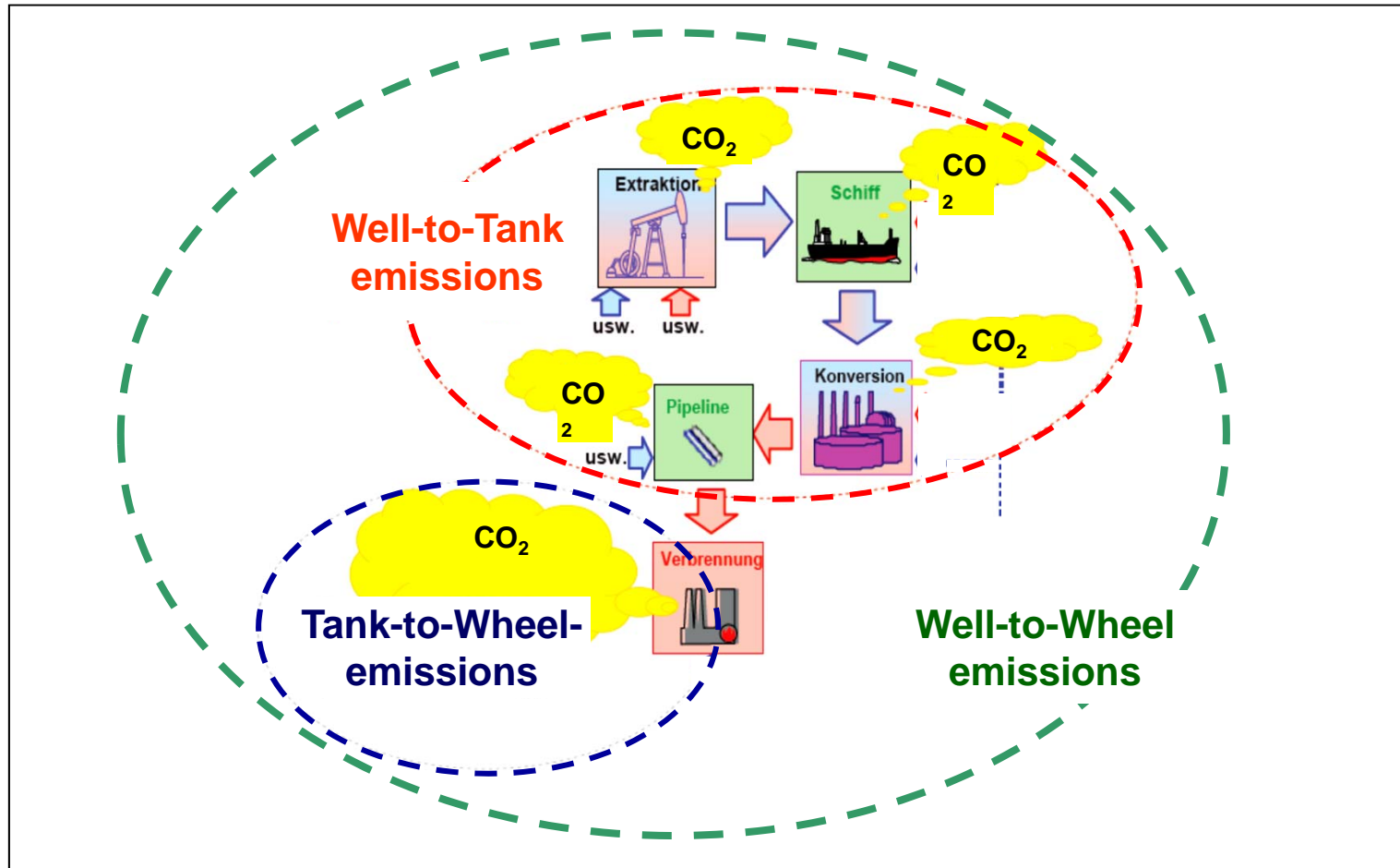


Which part of the transport chain should be included: Transport or also stationary processes?





Should upstream processes (well-to-tank emissions) be included?

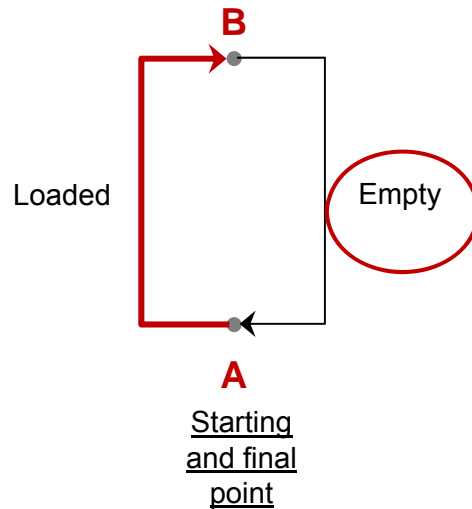




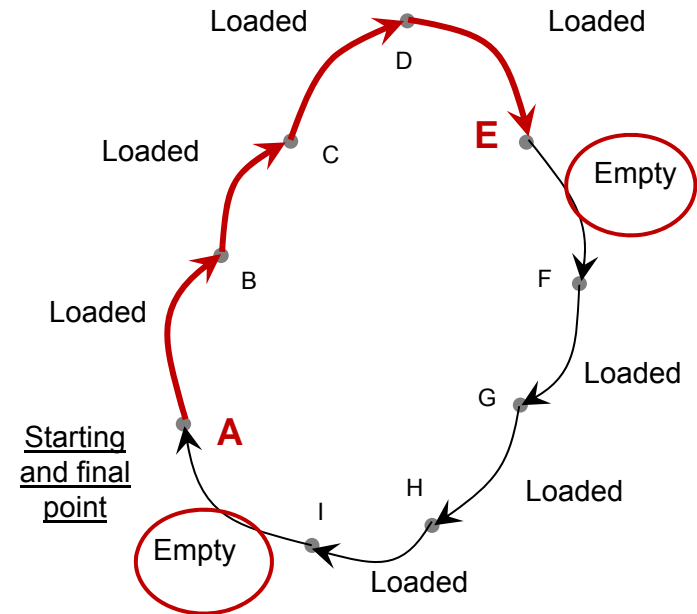
Should empty trips be included into the calculation of GHG emission of freight transport?

Carbon footprinting standard

A-B: Transport service (empty trip B-A)



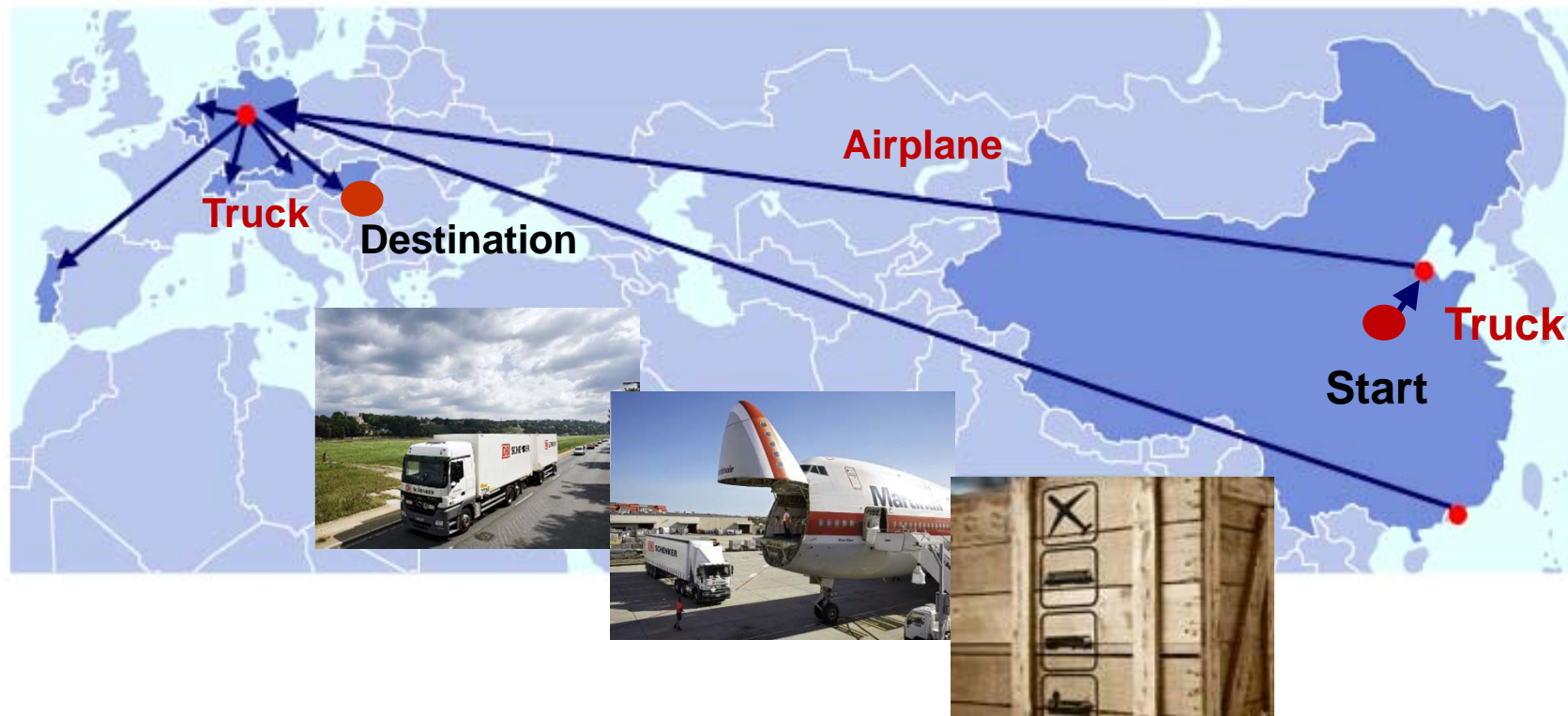
A-E: Transport service (empty trips E-F and I-A)



⇒ **Empty trips have to be included and allocated to all shipments**

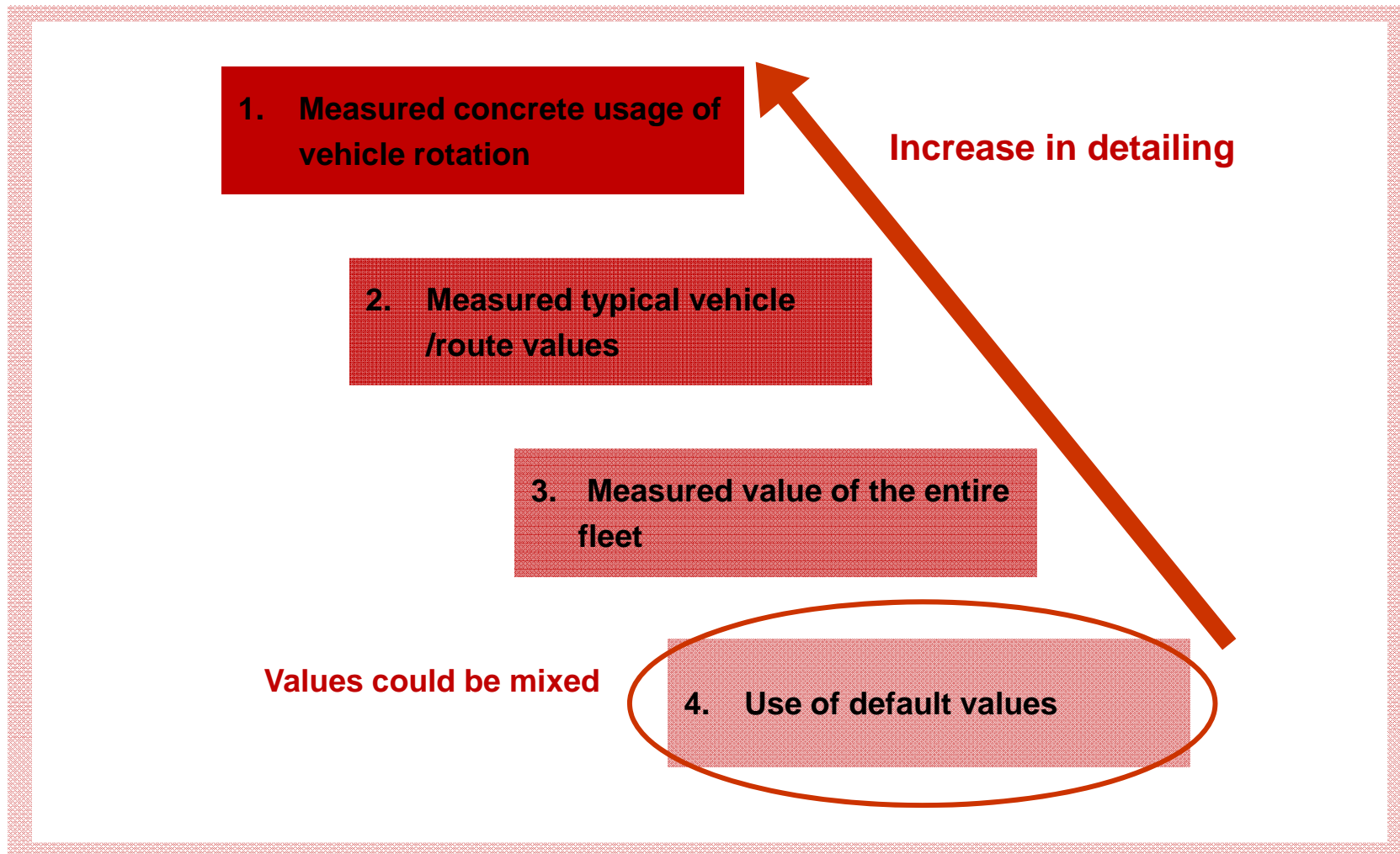


Calculation of GHG Emission for one Air Cargo Shipment in the Entire Transport Chain



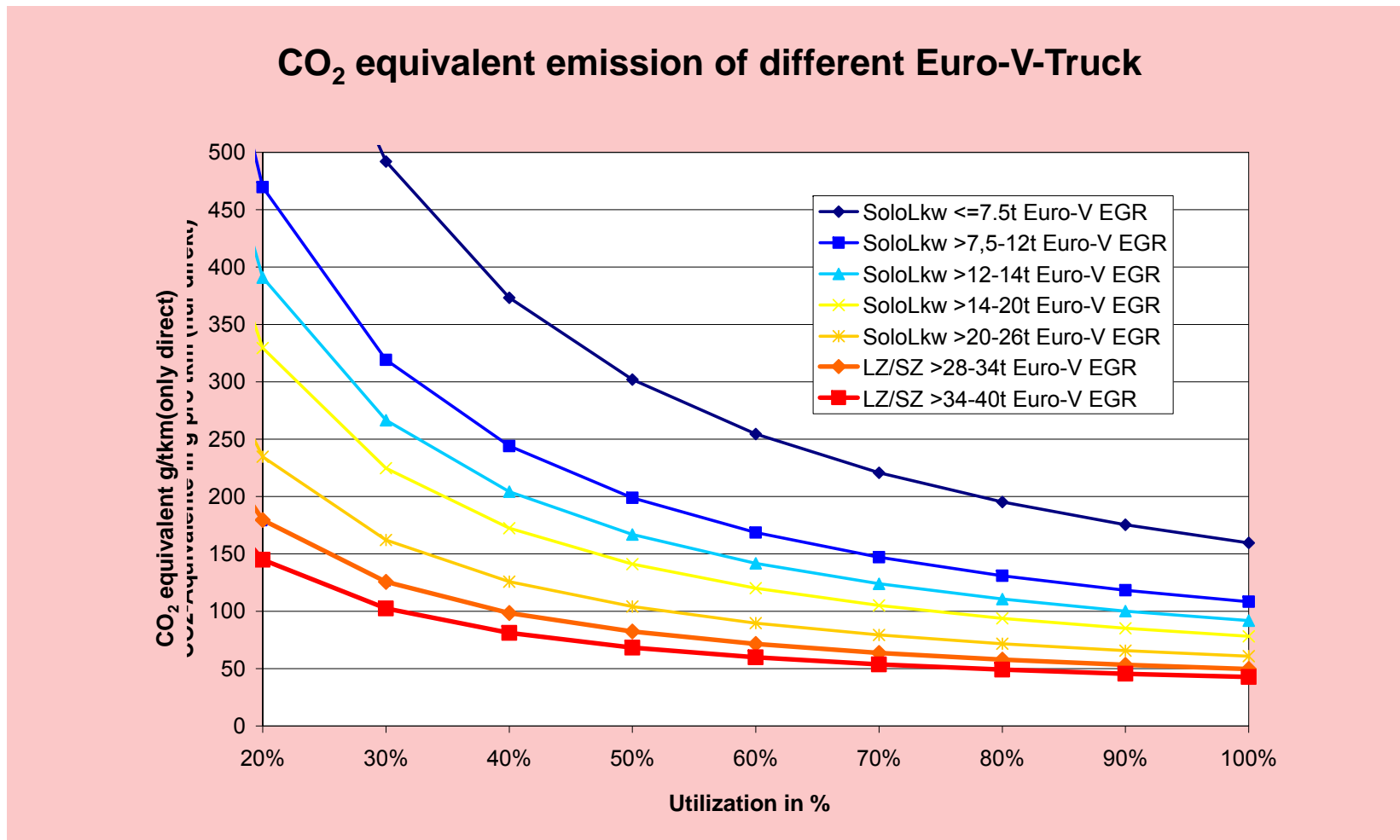


Sources for the Identification of Fuel Consumption of Vehicle Links which belonging to Single Legs





CO₂ equivalent Emission Factors (only direct) depending on Utilization





CO₂ and GHG Calculator for all Modes of Transport: EcoTransIT *World* (www.ecotransit.org)

EcoTransIT
EN DE FR ES IT NL

- Make your own calculation -

What is EcoTransIT?

- ◆ Guided Tour
- ◆ General information
- ◆ Covered influencing factors
- ◆ Covered environmental impacts

Whom does EcoTransIT serve?

- ◆ Target Group
- ◆ Freight & Environment
- ◆ References

Who is behind EcoTransIT?

- ◆ Project Partners
- ◆ Scientific Support
- ◆ Future Prospects

What?

Whom?

Who?

Origin: All types [] side track harbour available
Please fill in a location.

Destination: All types [] side track harbour available
Please fill in a location.

Cargo weight: 100 Tons Type: average goods

Transport type	Emission type	Load factor [%]	Empty trip factor [%]	
<input checked="" type="checkbox"/> Lorry	40 tons	EURO 3	58	17
<input checked="" type="checkbox"/> Train	average train	electrified	58	50
<input type="checkbox"/> Inland ship			58	17
<input type="checkbox"/> Sea ship				
<input type="checkbox"/> Air plane				
<input type="checkbox"/> Combined transport / individually designed route				

Ferry routing: normal

Consider transfers: -



Summary of EN 16258 EN16258

prEN 16258

1. Only transport and energy processes are considered
2. Calculation of energy consumption and GHG emissions(Well-to-Wheels und Tank-to-Wheels)
3. Basic formulas and default energy/GHG conversion factors are given within the standard 在
4. Each leg of transport services shall be calculated separately
5. For each leg the whole vehicle operation system (VOS) has to be calculated (including empty trips)
6. Energy consumption of VOS can be calculated in four different ways (specific measured values ↔ default values))
7. Allocation should be done by using transport performance (pax.km or tonne.km))
8. Within the declaration information about the general approach shall be given (e.g. allocation method and units, default values)



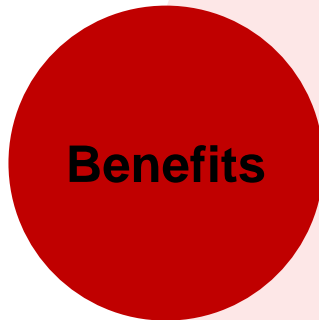
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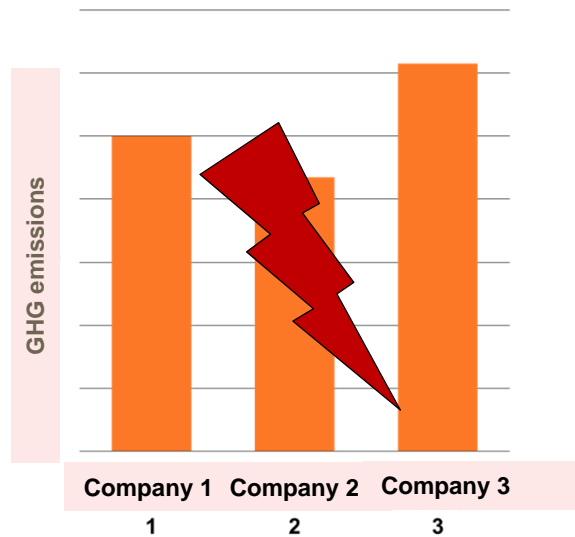
- Part 1: Motivations for Green Logistics and Carbon Footprints in Europe
- Part 2: Approaches of Standardisation of Carbon Footprints in road transport
- **Part 3: Applications and benefits of Carbon Footprints: Experiences of Europe**



What are the benefits of using a standardised calculation methodology like EN 16258?

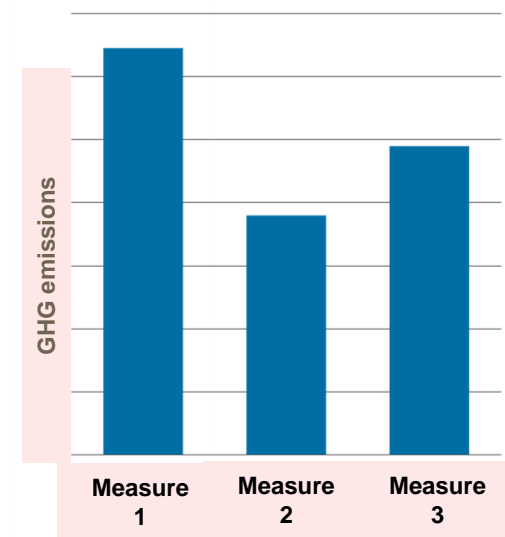


Comparison of companies:



- ⇒ is possible only for transport services with identical system boundaries
- ⇒ otherwise is difficult

Comparison of measures:



- ⇒ is possible
- ⇒ can be used to evaluate the achievement of GHG mitigation goals/targets

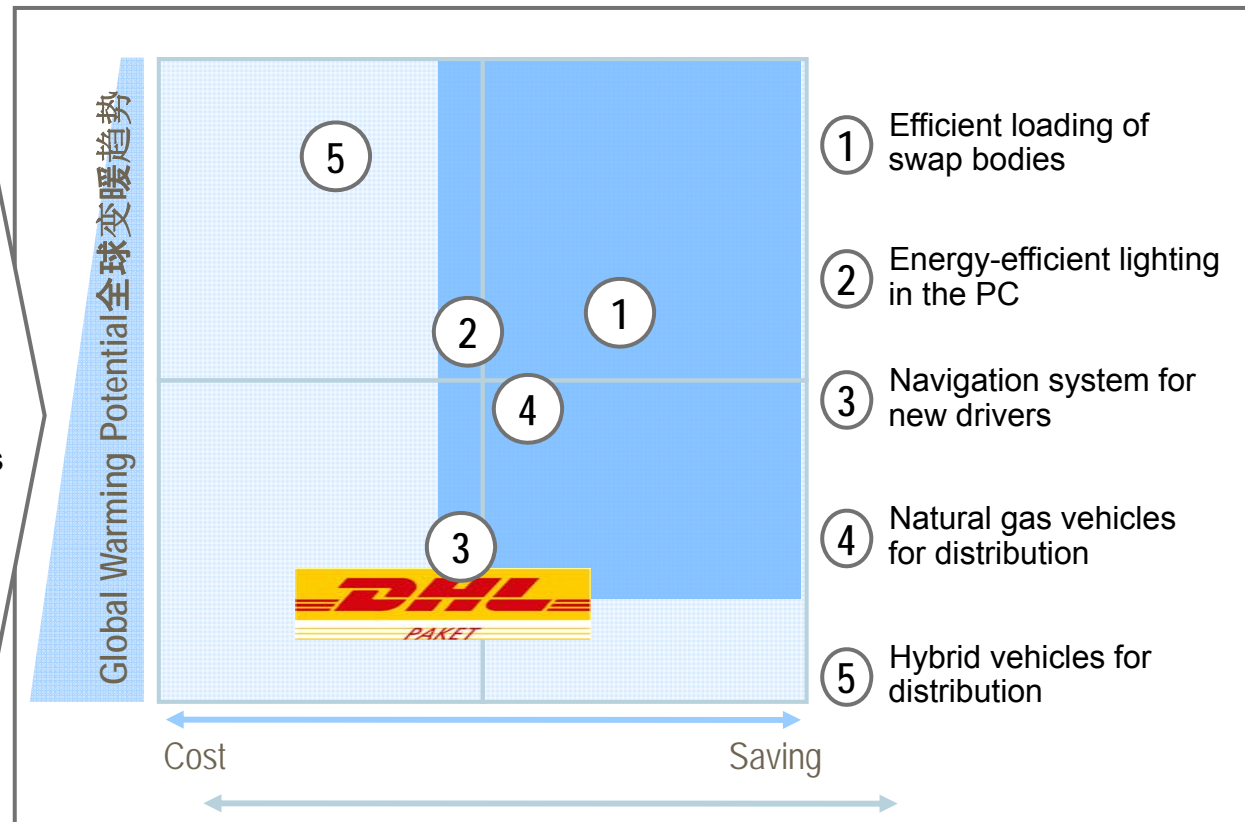


Example DHL-Package: Evaluation of Climate Protection Measures with the Help of the Eco-efficiency Analysis

Analytical approach

- | Integrated ecological and economic analysis using the eco-efficiency analysis
⇒ improved transparency for decision makers
- | The ecological analysis considering the direct and indirect emissions, as well as all GHG
- | The economic analysis based on the life cycle cost and considering different times-of-use

Application of selected measures

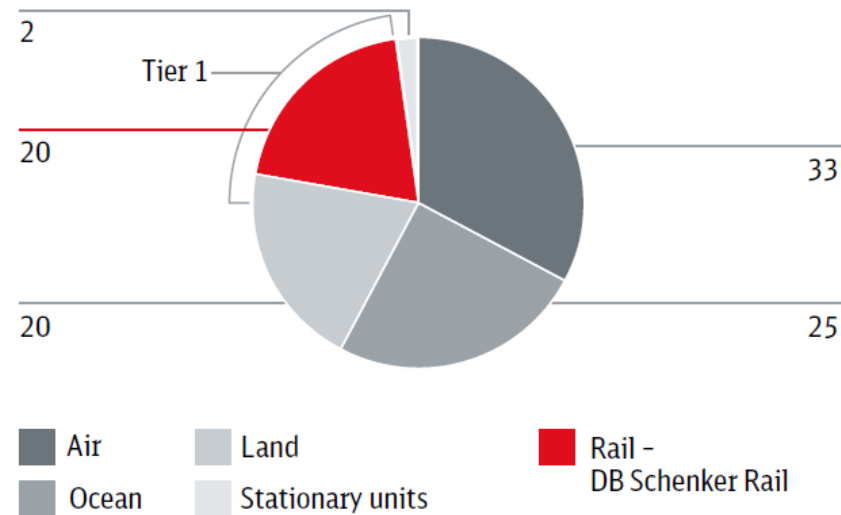




Example of DB Schenker: CO₂ equivalent emissions of the whole company in 2011

Applications

Share of processes in the total amount of GHG emissions in %



According to prEN 16258, emissions for DB Schenker amount to 14.6 million tons.

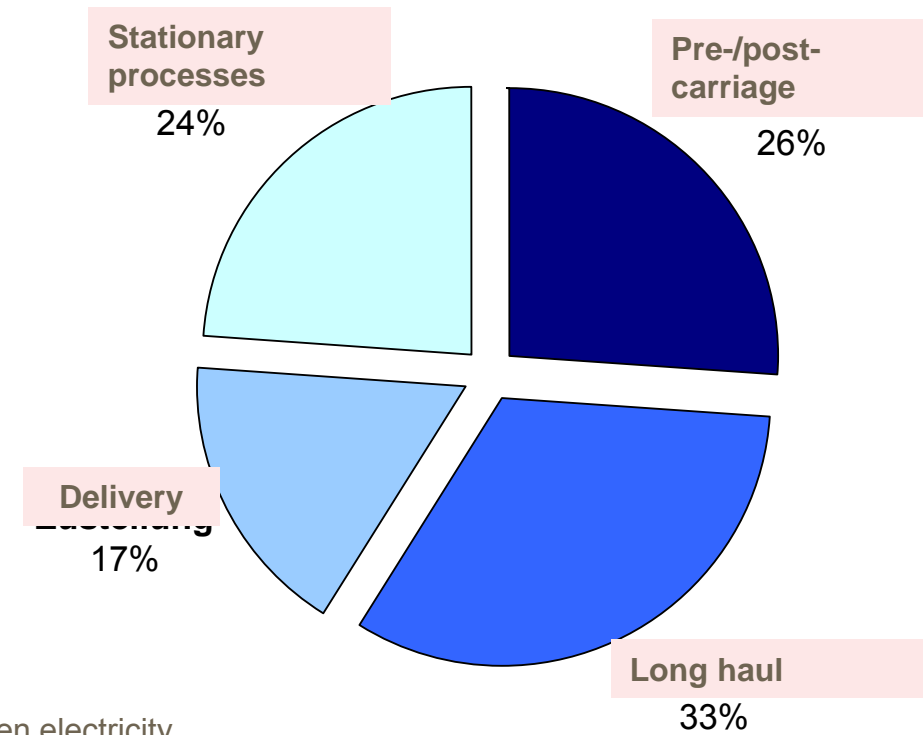
* incl. pre- and post-carriage



Example of Deutsche Post DHL: CO₂ equivalent emissions of a standard parcel in Germany (2006)

Applications

Average:¹⁾
around 650 g
CO₂ equivalents
per parcel
(2012: 500 g
CO₂e/parcel)



1) Before using green electricity.



Thank you very much for your attention!

▶▶ Contact Details

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