Good practice: Terminal operation at the Port of Hamburg

Clean air in ports and port cities, 04th. June 2014, Jan Hendrik Pietsch, Corporate Sustainability Manager

Overview

- The company HHLA
- HHLA‘s sustainability strategy
- Modal shift from street to rail
- Terminal measures to keep the air clean
  - Technology
  - Organisation
  - Know How
- Q & A

A Leading Port Logistics Company

Company overview

Container

- Container handling
- Container transfer and storage
- Value-added container services (e.g., repair, maintenance)

Intermodal

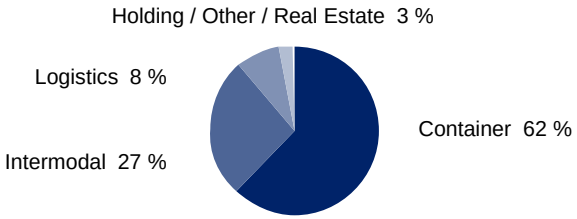
- Rail- and road-bound transport services in the port´s hinterland
- Loading/Unloading of carriers
- Operation of hinterland terminals

Logistics

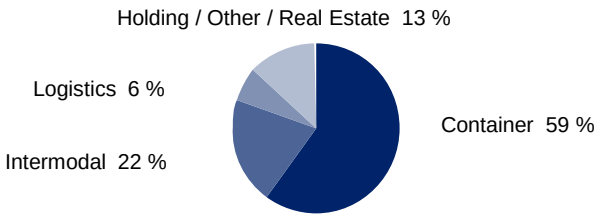
- Special seaport handling — Bulk commodity, Fruit, RoRo, ConRo
- Consulting, training
- Warehousing and contract logistics

Split 2013 (HHLA Group)

By revenue – € 1,155.2 million

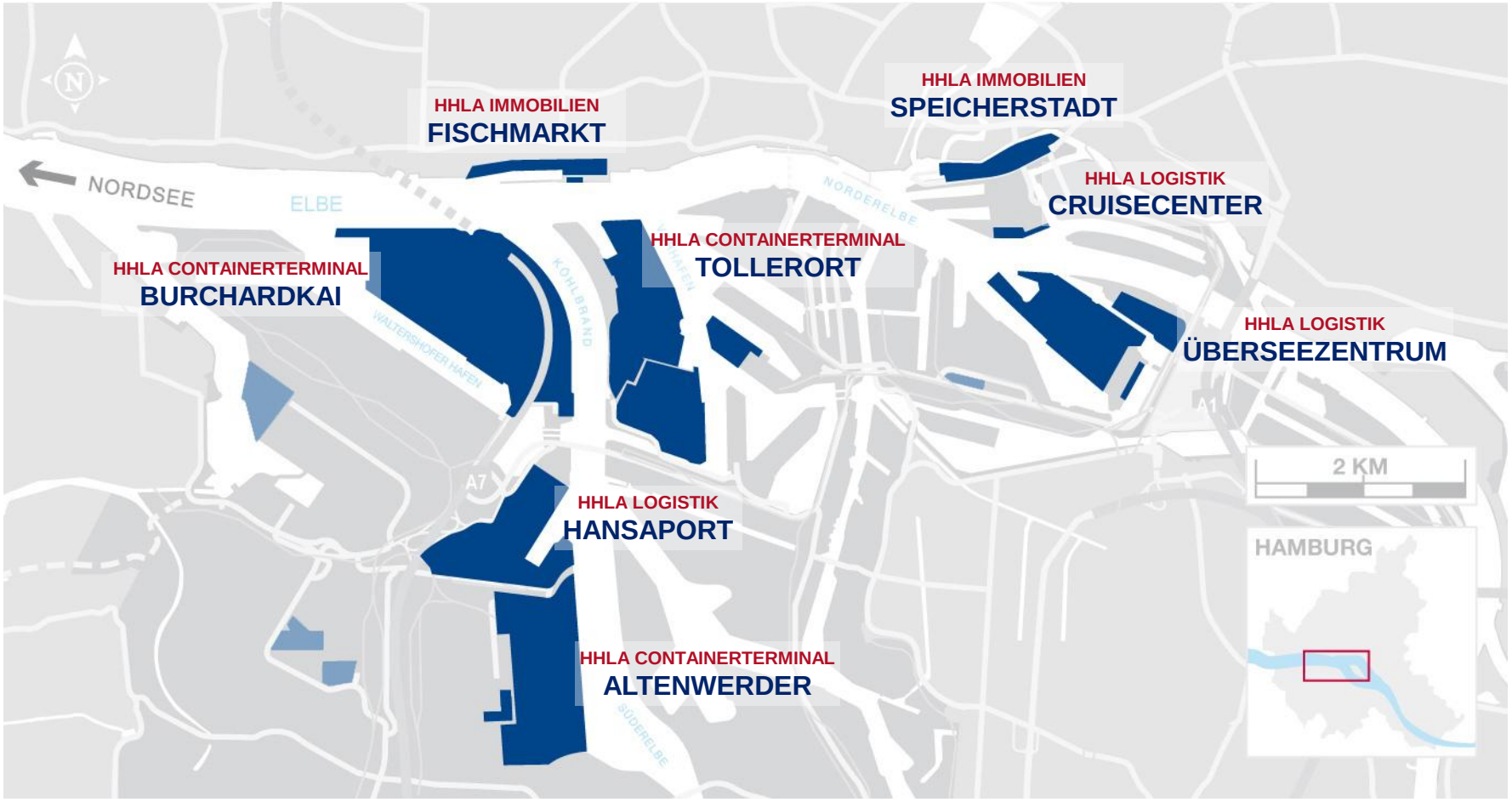


By employees – 4,994



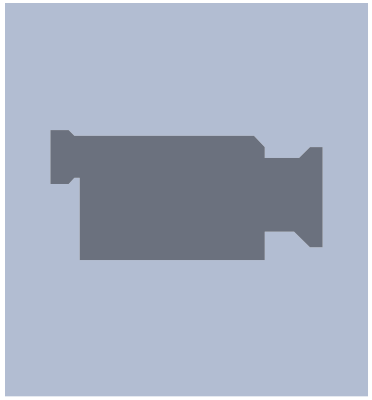
HHLA in the port of Hamburg

About 70 % of throughput in Hamburg is handled by HHLA



FILM EUROPEAN TRANSPORT CHAIN

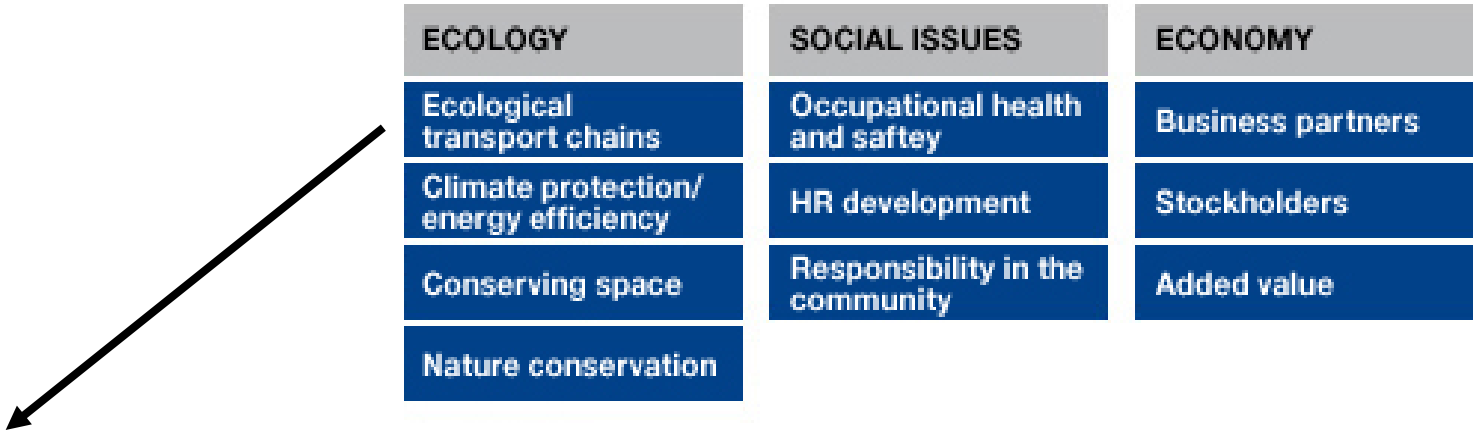
Modern production concept shifts goods from street to rail



- Two crucial levers to minimize air pollution:
  - Modal shift to rail
  - Terminals

Action areas and group policies

Ecological transport chains and climate protection



GROUP POLICY

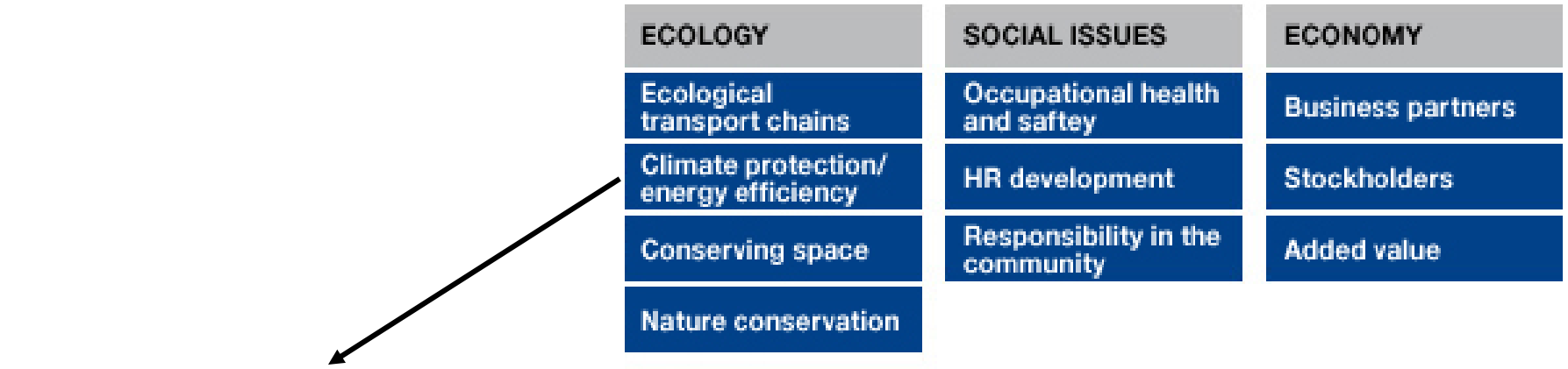
We are actively networking with other logistics players to create sustainable environmentally-friendly transport chains.

OBJECTIVE

By extending its facilities and networks HHLA meets its requirement for an over-proportional increase in the use of railways in the hinterland.

Action areas and group policies

Ecological transport chains and climate protection



GROUP POLICY

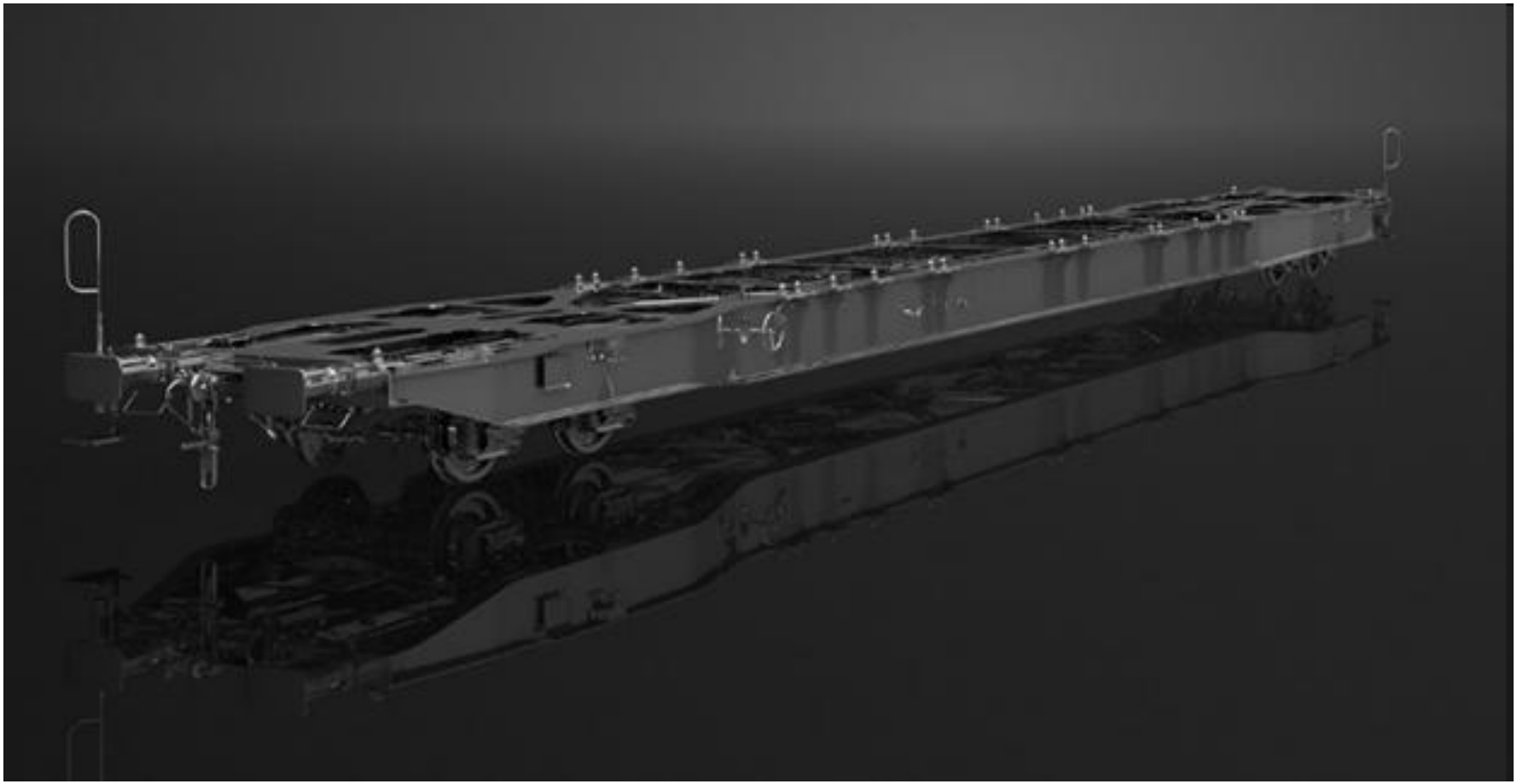
We exploit all technically meaningful and economically justifiable alternatives in our sphere of influence to reduce CO_2.

OBJECTIVE

HHLA has set itself an objective to reduce emissions of CO2 per handled Container by the year 2020 by at least 30%, based on the year 2008.

Modal shift from street to rail

Joint development of specially designed energy efficient rail cars



Efficiency improvement to reduce air pollution

Lightweight railcars, specially developed for maritime traffic

- More than 10% additional containers on one train, decreasing air pollution, noise and GHG emissions.
- Less shunting in harbour areas through hub and shuttle system
- 30% lesser weight than traditionel railcars

RAIL-PORT HAMBURG

More than 70%* of all long distance containers arrive and leave the port by train; the high share of rail reduces emissions

Market share of rail Containers (2013*, TEU Mio)

Success factors

- **Ecological and reliable**
- Good infrastructure and connections
- **Highly efficient**

Quelle: HHM *im Langstreckentransport über ca. 300 km

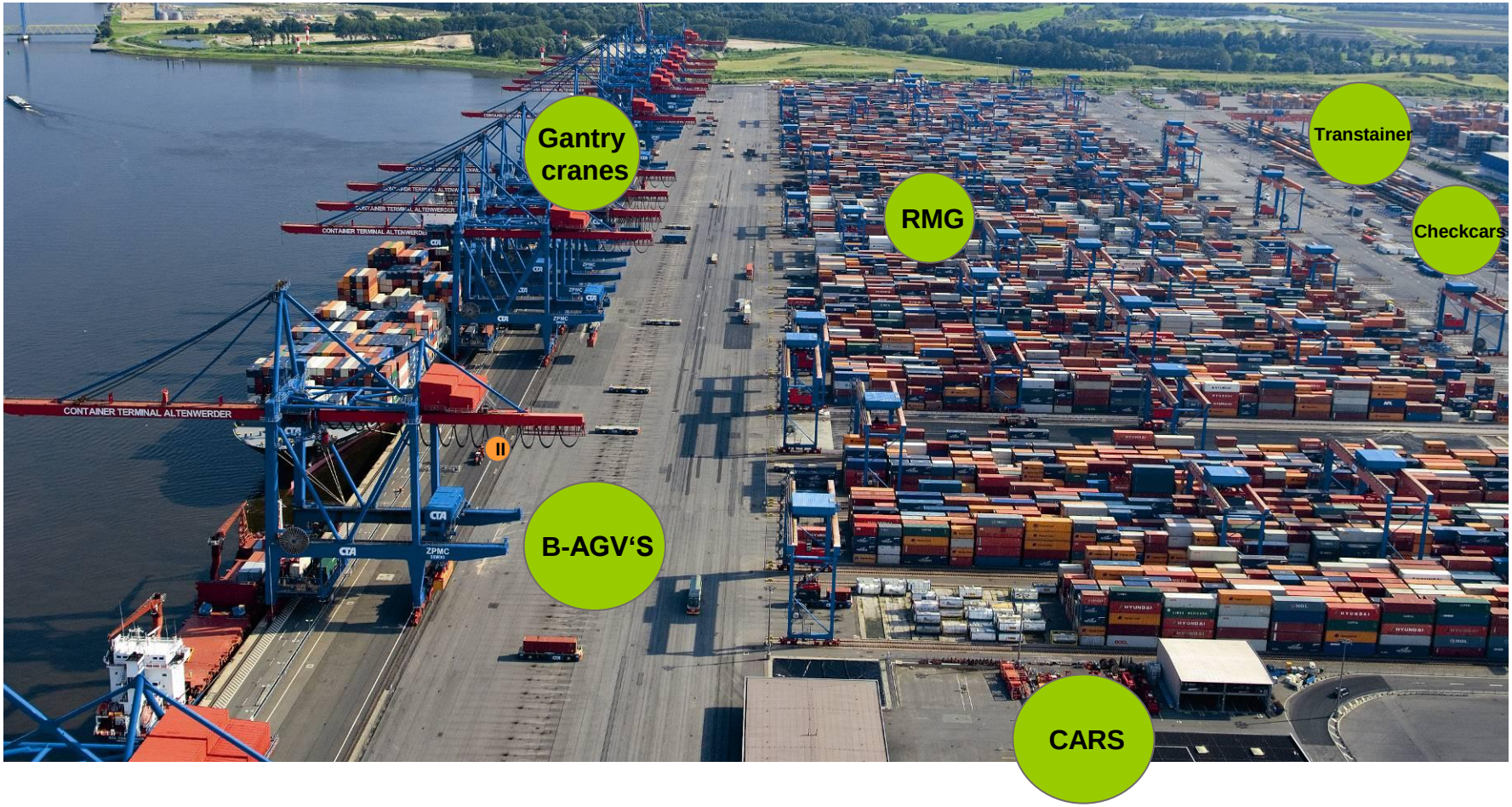
Minimisation of air pollution

Three levels

Technology	Processoptimisation	Know How
▪ Substitution of diesel powered machines through electrified machines ▪ Use of technology most advanced air pollution minimised machines ▪ Usage of energy from renewable sources	▪ Optimisation of processes to decrease energy consumption ▪ Decrease port time of ships through high terminal productivity	▪ Inclusion of employees

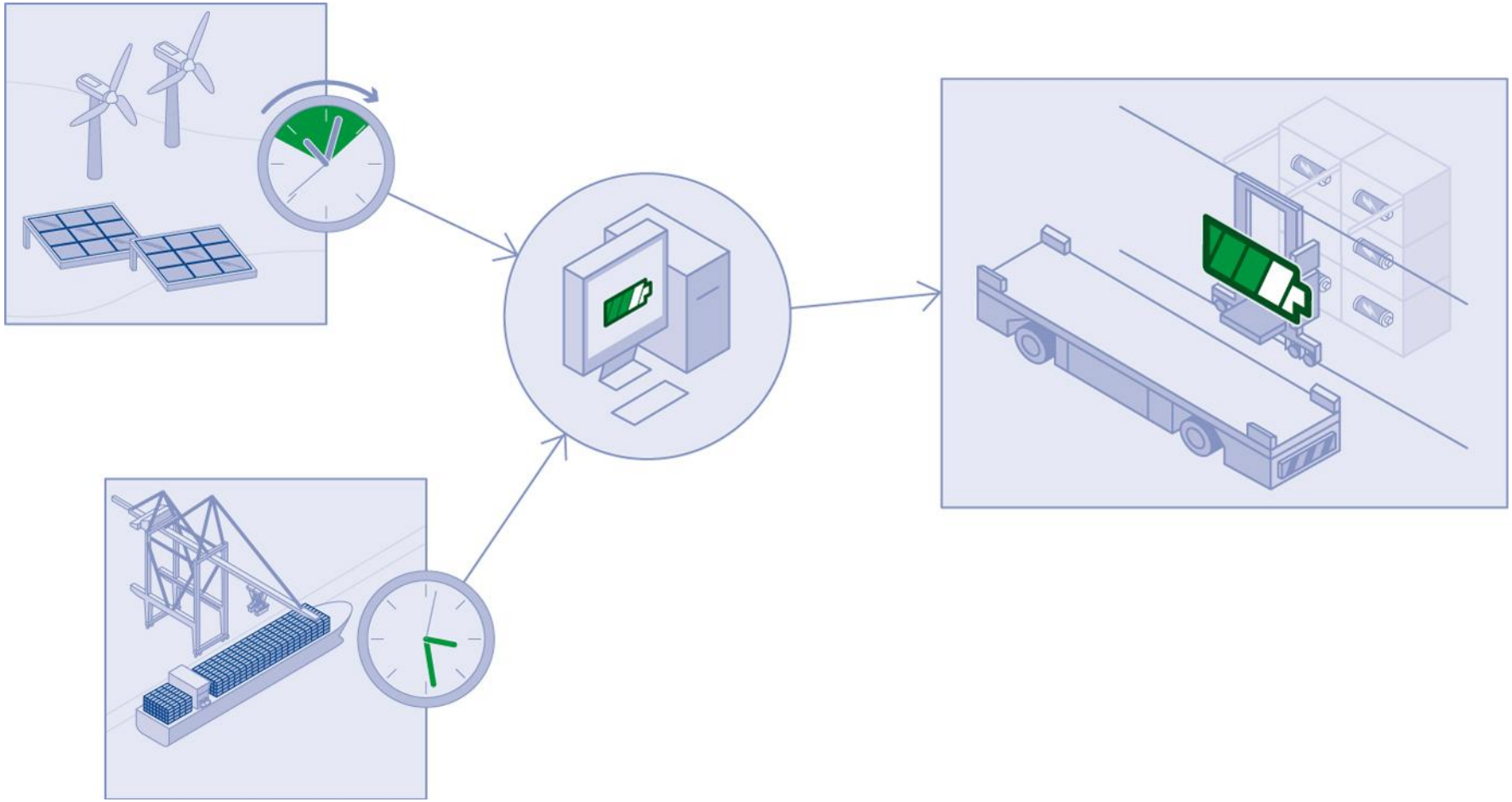
Substitution of diesel powered machines through electrified machines

Decreasing CO_2 emissions and air pollution



Project BESIC

World‘s first zero emission carriers at HHLA‘s terminal in Hamburg



FILM BESIC

World‘s first prototypes at HHLA terminal

- 10 battery powered AGV‘s in operation
- Locally emissionfree
- Powered by green electricity
- Battery weight: 12 tons

Biggest fleet of Electric vehicles in Northern Germany

60 EV‘s on all harbour terminals in operation

- Purely electric driven
- Speed limited to 30 km/h
- Charge station for every EV

Biggest fleet of Electric vehicles in Northern Germany

60 EV‘s on all harbour terminals in operation

- High acceptance from employees
- Very quiet
- Over 150.000 km driven already

Solarenergy

Container Terminal Tollerort

- On the roof of the maintenance center of Container Terminal Tollerort
- Production of CO_2 free electricity 2013: 116.600 kWh

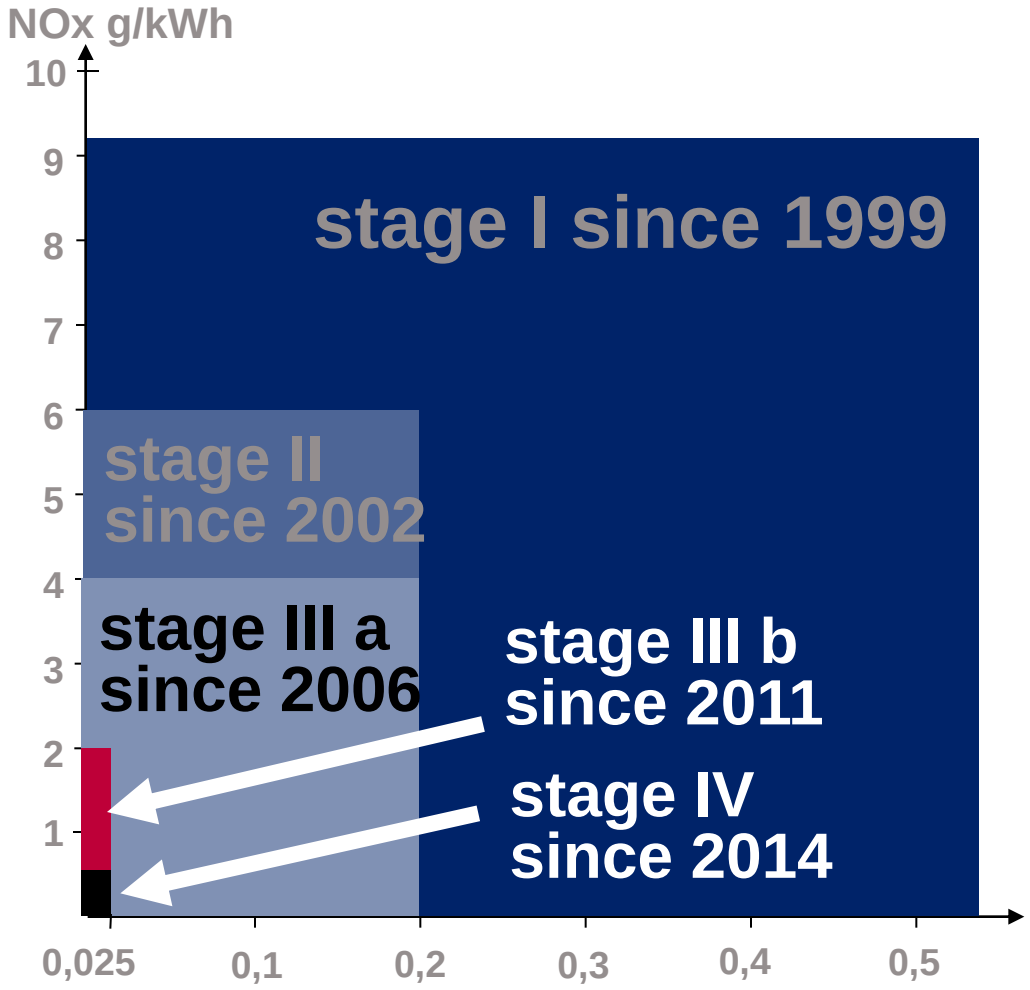
Emission reduced Hybrid straddle carriers

Significant reduction of air pollution between stage 1 and stage 3 b

- During last decade reduction of specific Diesel consumption by 30% through hybrid technology
- Usage of „normal“ Diesel
- Reduction of air pollution through technology

Development of clean air standard for straddle carriers

Since 1999 80% reduction of NOx and 95% reduction of PM



- All HHLA straddle carrier comply to the EU – Nonroad – directive 97/ 68/ EG
- HHLA operates biggest fleet of Northrange ports which complies with stage Stufe III b
- Zero local emission machines are purely electric powered. They emit no PM, NOx and no SOx

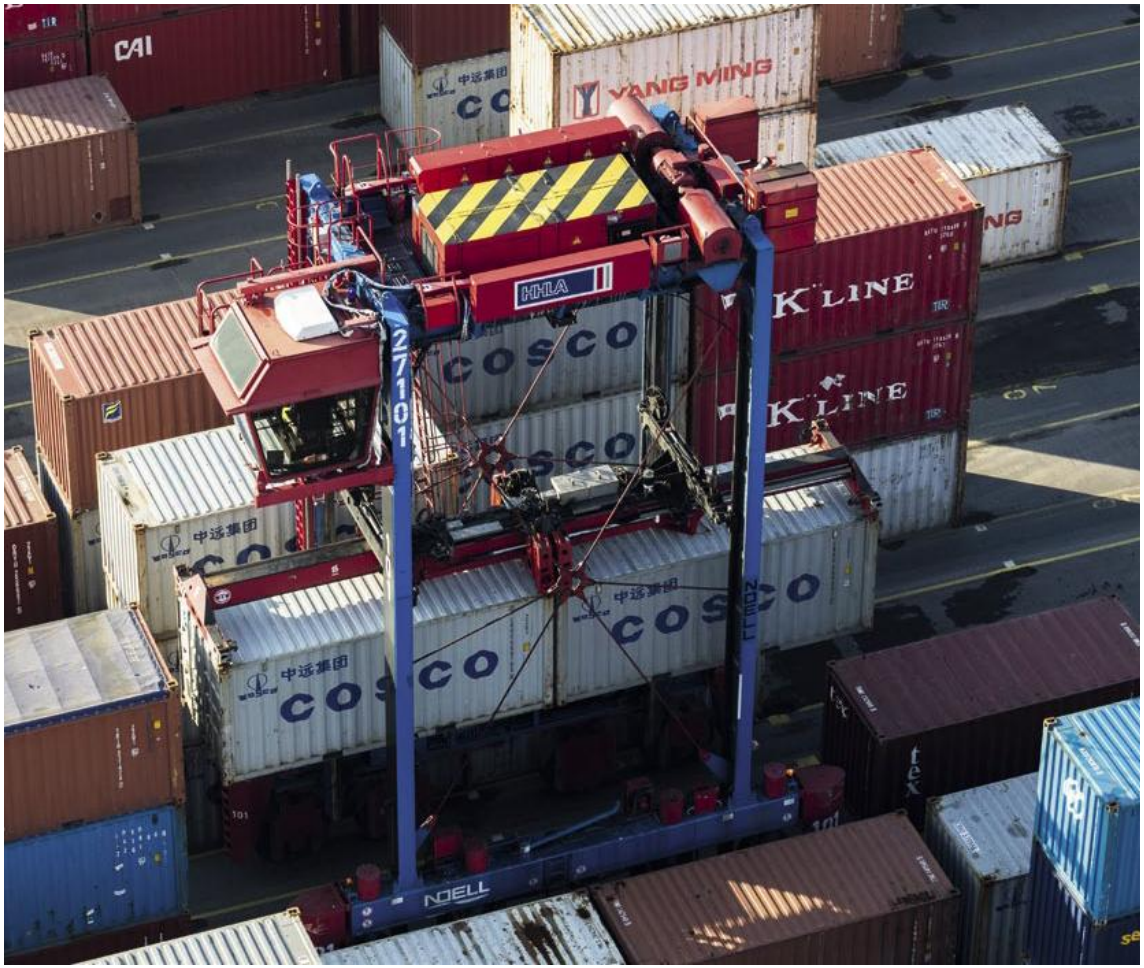
Add Blue Technology

Reliable technology to reduce air pollution

- Add blue is stored in a separate tank and added to the combustion process
- Prozess and technology introduced on HHLA Terminals

Process optimisation to reduce emissions

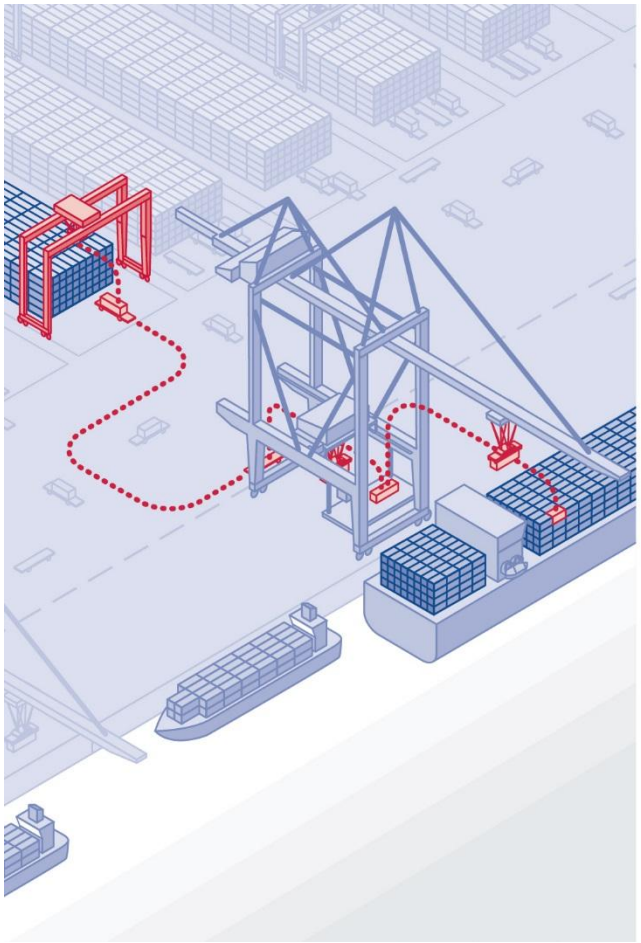
Optimierung logistischer Prozesse – Twin Operation



- Simultaneous transport of two 20‘ containers reduces the number of empty drives and therefore the Diesel consumption and the noise emisions
- More than 100.000 L Diesel saving annually

Process optimisation to reduce emissions

Combined loading and discharging improves the energy efficiency



No move in vain: Unnecessary empty moves are obsolete

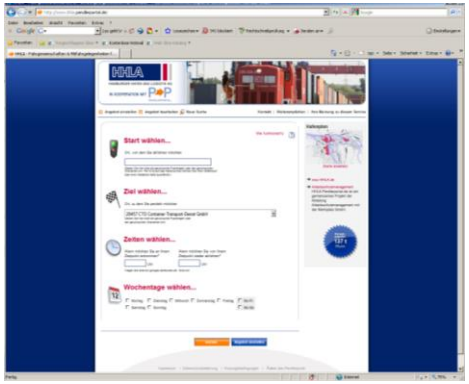
Current principle: four moves of bridge for two boxes

Future principle: two moves of bridge for two boxes

Advantage: noticably more throughput in the same amount of time, reduced immissions, reduced berthing time

Employee Know how

Inclusion of employees



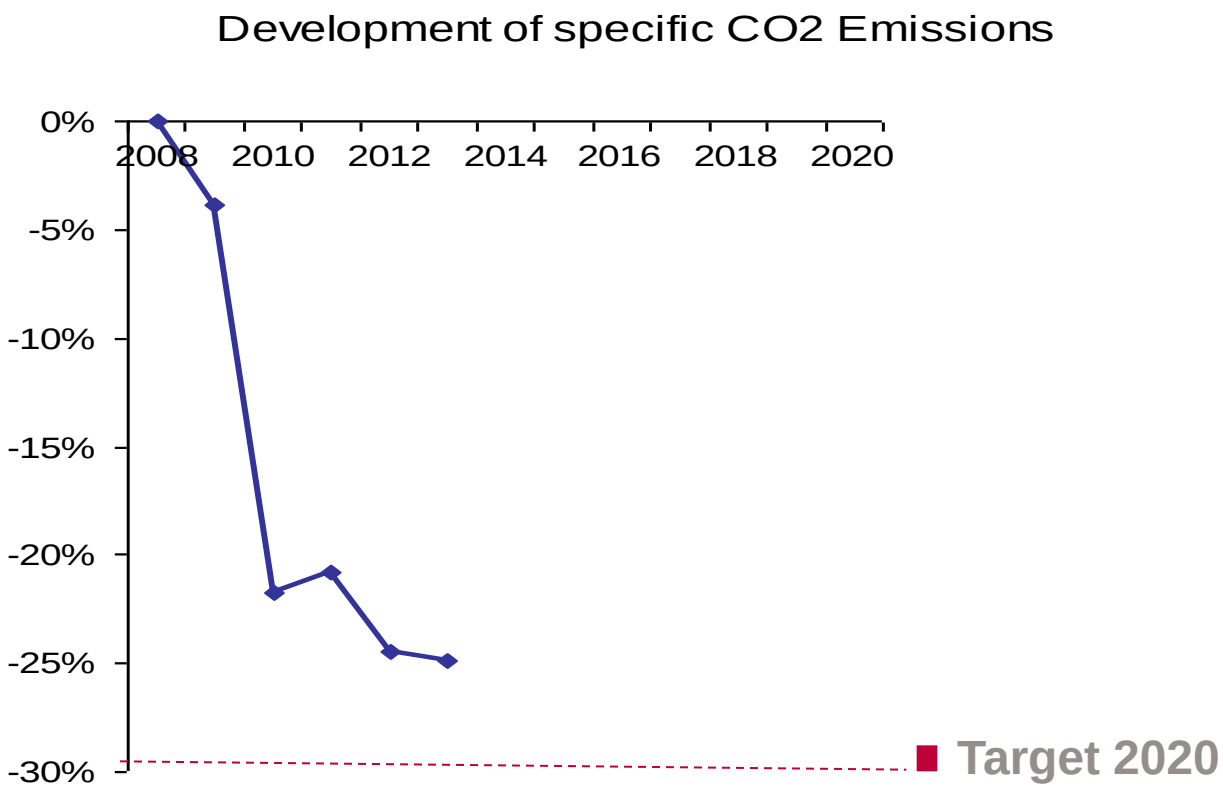
- Intranetbased portal for car-pools of employees

- Increase usage of public transportation systems through subsidized cards

- Ideas competition to reduce energy consumption

Development of CO_2 emissions

Since 2008 reduction of 24,9%



Questions and answers