



Clean Air in Ports



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NABU e.V.



- German Nature and Biodiversity Conservation Union
- 540.000 members
- Member of Birdlife International



NABU: Air Quality Projects



Measures

- Create Smart Campaigns and Projects
- Raise Awareness



Aim

- Foster Implementation of Regulation
- Promote Technical Solutions
- Include Stakeholders



EU LIFE + „Clean Air in Ports“



- **6 Conferences / Workshops**
(Hamburg, Antwerp, London,
Copenhagen, Barcelona, Gdansk)
- **Working Paper**
(Best Practice / Technical Solutions.
www.nabu.de/ports)
- **Network of Ports**



Stakeholders in Ports



- Administrations
- Port authorities
- High sea shipping companies
- Terminal operators
- Logistic companies
- Industry
- Public transport
- Utilities



Air pollution in ports: What is the problem?



- Particulate Matter (PM)
- Black Carbon (BC)
- Sulfur dioxides (SO₂)
- Nitrogen oxides (NO_x)



Air pollution in Europe



- 90% of people living in European cities exposed to extremely harmful air pollution levels
- EU: 400,000 premature deaths p. a. due to poor air quality
- estimated health cost €766 billion



Consequences of air pollution for Europe

- Health
- Climate
- Environment



Consequences for Health

- cardio-vascular disease, asthma, bronchitis, cancer
- 50.000 premature death p. a. due to poor air quality in European ports



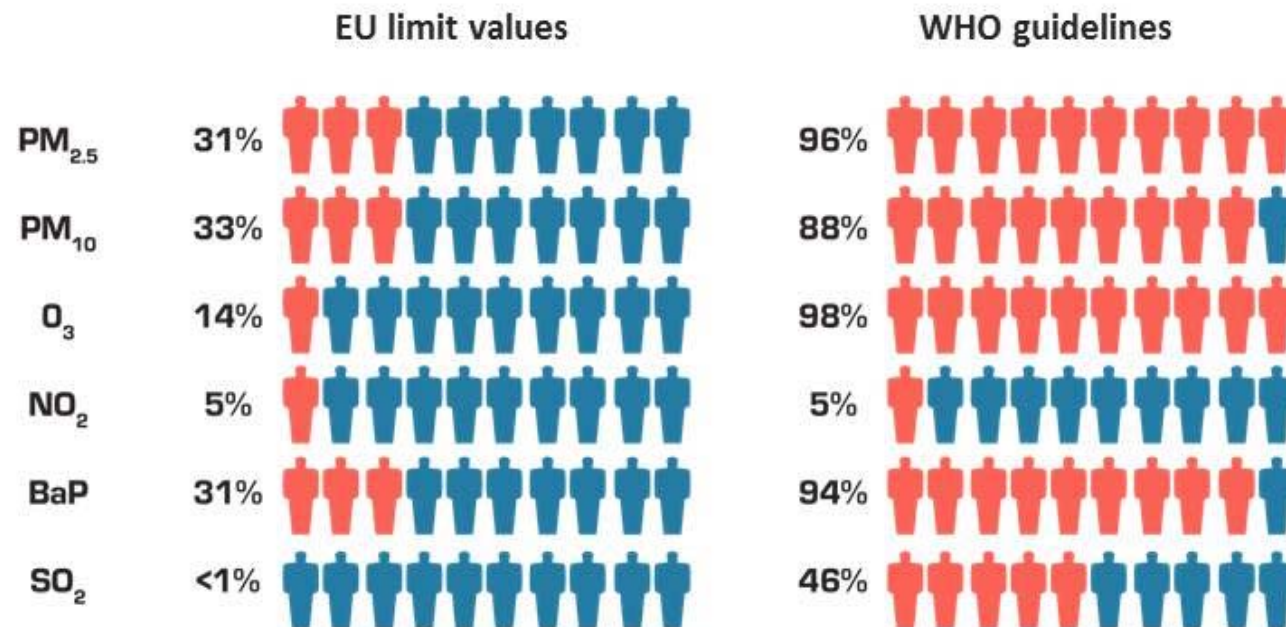
Consequences for Health

- cardio-vascular disease, asthma, bronchitis, cancer
- 50.000 premature death p. a. due to poor air quality in European ports



Europeans' exposure to harmful levels of air pollution

EU urban population exposed to harmful levels of air pollution in 2011, according to:



Up to a third of Europeans living in cities are exposed to air pollutant levels exceeding EU air quality standards. And around 90 % of Europeans living in cities are exposed to levels of air pollutants deemed damaging to health by the World Health Organization's more stringent guidelines.

Consequences for the Environment

- Acid rain
- Declining forests
- Acidification of soils
- Damage to plant vegetation
- Eutrophication of fresh water bodies, soils and coastal areas



Consequences for Climate

- Soot contributes to atmospheric warming, lowers reflection capacity of snow and ice



- BC is responsible for 40% of arctic warming

EU legislation for clean air



EU legislation for clean air: single emitters



Emitter	Directive on
Ocean going vessels	Sulfur content of marine fuels
Port equipment	Emissions of non-road mobile machinery
Trains	Emissions of non-road mobile machinery
Inland ships	Emissions of non-road mobile machinery
Trucks	Emission of gaseous and particulate pollutants from compression-ignition engines
Cars	Emissions from light passenger and commercial vehicles



The European Ambient Air Quality Directive

AQD (2008/50/EC)



- sulphur dioxides
 - nitrogen dioxide and oxides of nitrogen
 - PM10
 - PM2.5
-
- lead
 - benzene
 - carbon monoxide



The European Ambient Air Quality Directive



- sulphur dioxides
- nitrogen dioxide and oxides of nitrogen
- PM10
- PM2.5
- lead
- benzene
- carbon monoxid

Limits lack ambition and still get breached

Revision needed



The European National Emission Ceilings Directive



- sulphur dioxides
- nitrogen dioxides
- volatile organic compounds
- ammonia



The European National Emission Ceilings Directive



- sulphur dioxides
- nitrogen dioxides
- volatile organic compounds
- ammonia

**Emission reduction targets too low
Postponement to 2030**

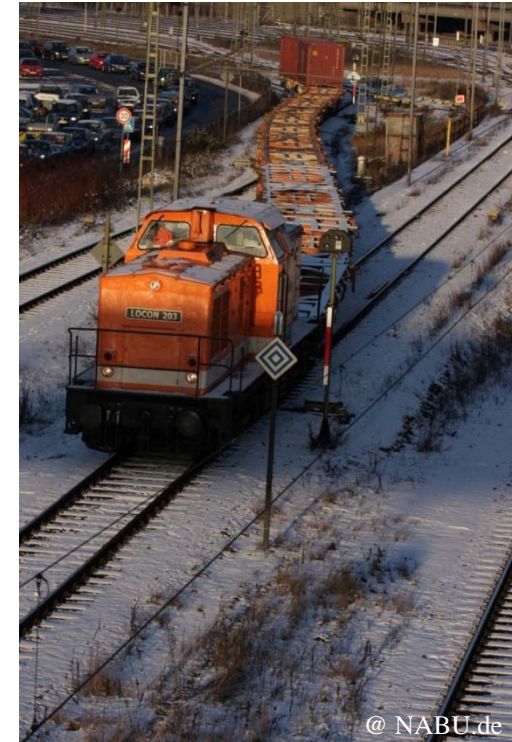


Sources of Emissions in Ports

- NRMM
- Trucks
- Ships



EU on Non Road Mobile Machinery



EU homework: NRMM



Strict PN limits



Alignment with EURO VI



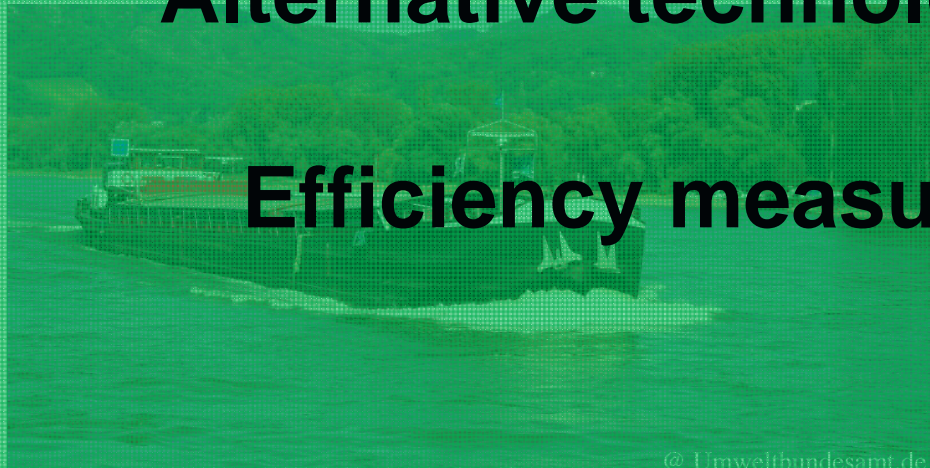
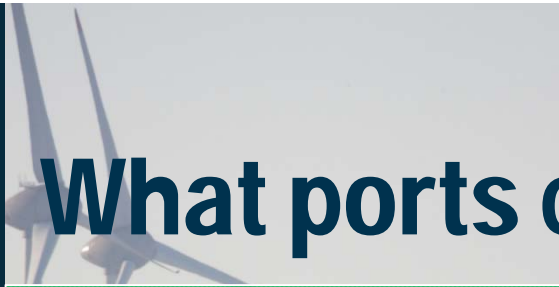
What ports can do: NRMM

Incentives for/ demand diesel particulate filters

Alternative energies

Alternative technologies

Efficiency measures

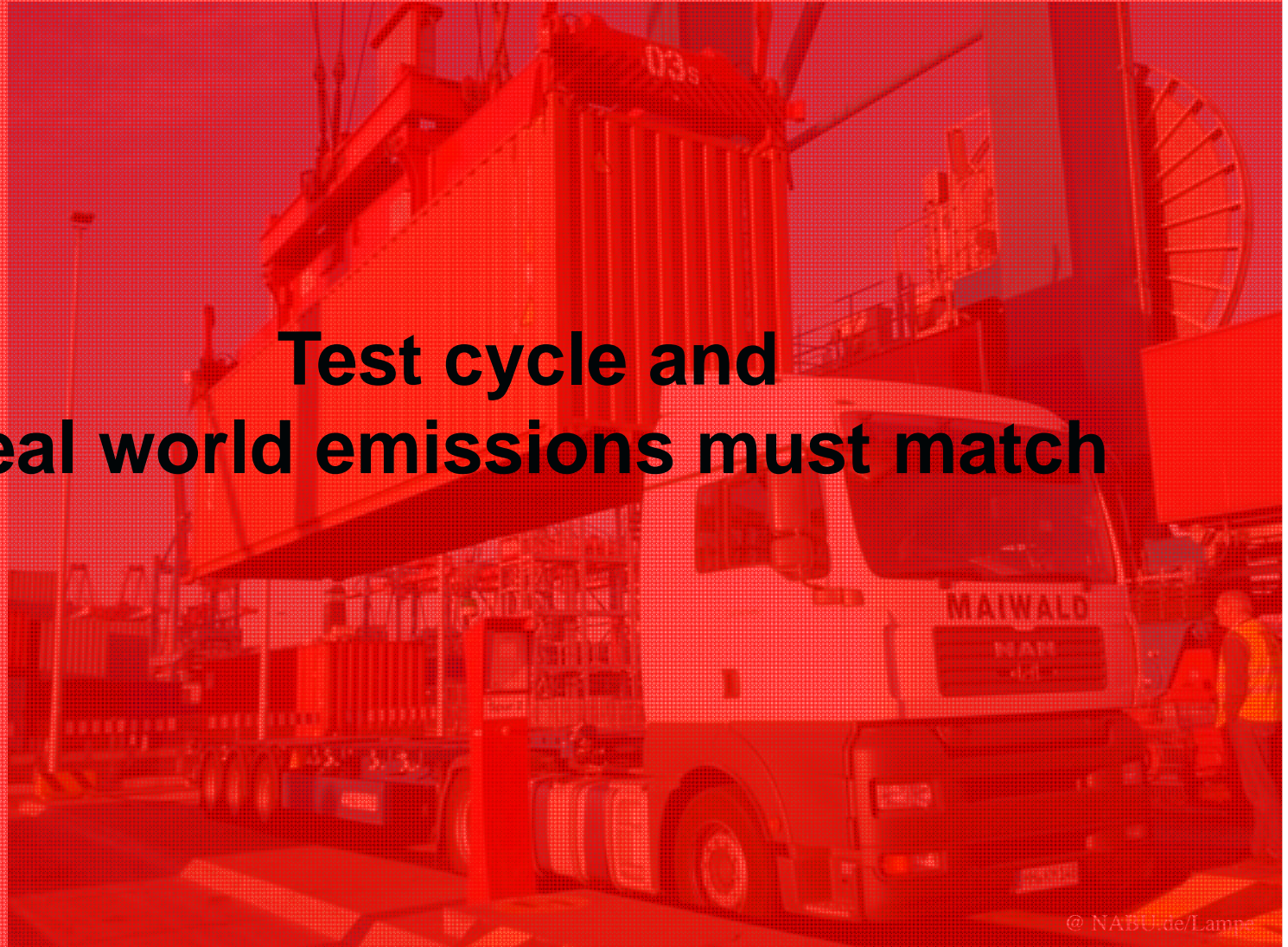


EU on Trucks



EU homework: Trucks

**Test cycle and
real world emissions must match**



What ports can do: Trucks

Incentives for clean trucks / ban dirty trucks

Test cycle and real world emissions don't match

Optimize traffic flow

Optimize arrival and departure

EU on ocean shipping



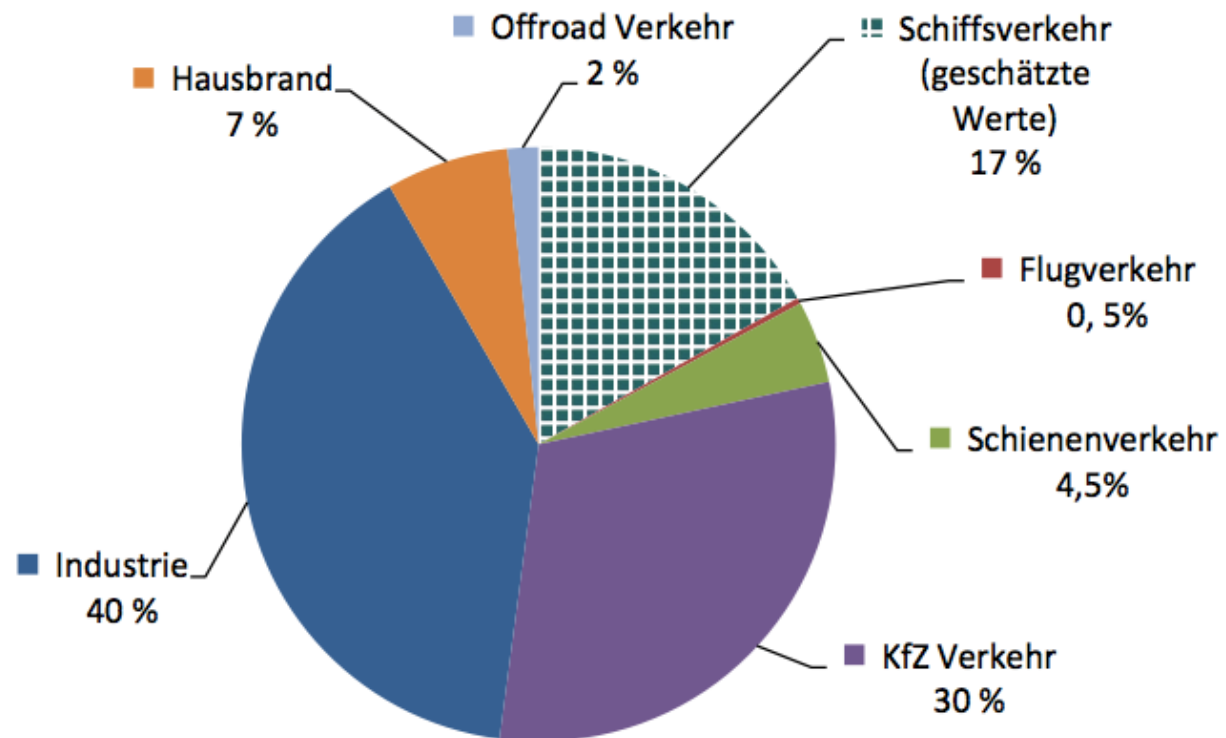
Sulphur Limits today

- Truck 0,001 %
-
- Open Sea 3,5 %
 - SECA North-East-Atlantic, Baltic Sea 1,0 %
from 1.1.2015 0,1 %
 - Ports (since 2010) 0,1 %

Hamburg: Sources of Emissions



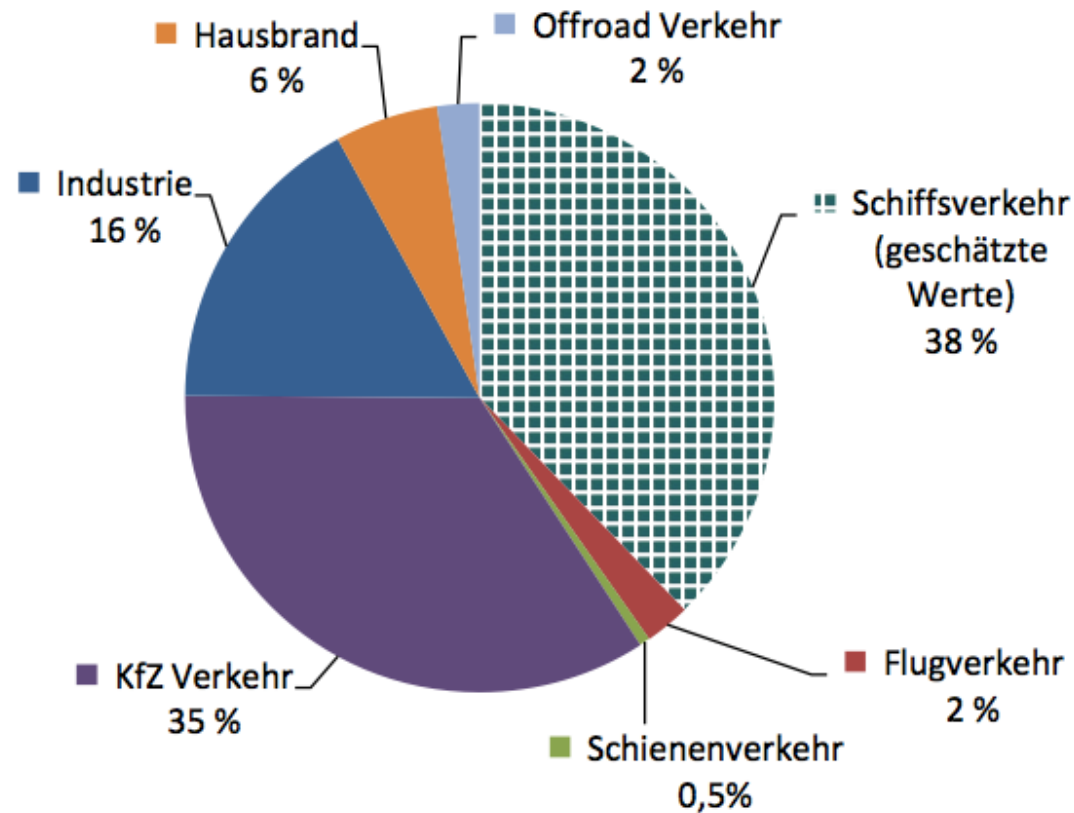
Feinstaub (PM₁₀)



Hamburg: Sources of Emissions



Stickoxide (NOx)



EU homework: Ocean shipping

Enforcement of 2015 limits

Speed limits

PM and BC control

Reduction to 0.005 percent sulfur

SECAs / NECAs all around Europe

What ports can do: Ocean shipping

Ecological Port Fees

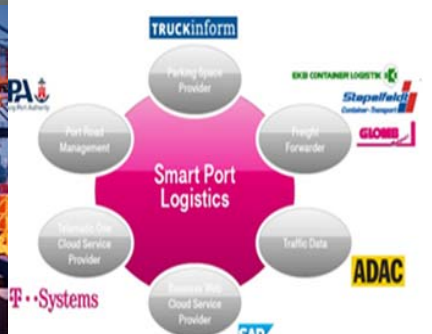
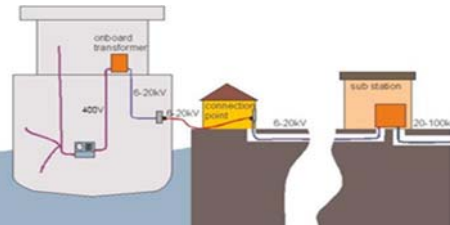
Restrictions

LSF

Slow steaming

OPS

Best Practice in Ports



Best Solutions Ships



Technical

- Filters, Catalysts, Alternative Fuels/Drives

Legal

- Coherent Standards
- Black Carbon included
- Full Compliance of Emitters
- No Breaching of Limits

Incentives

- Financial, Tax, Funding Programs



Take – home message



- Overall EU strategy too weak
- Some good EU directives and legislation
- Ports can do more
- Many measures are cost efficient
- More support by politics





Next Clean “Air in Ports” Workshop at

Gdansk,

19th of March 2015

Within “Transport Week” 17th-19th of March

www.nabu.de/ports





Thank you for your attention!

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