



# Balancing Environmental challenges with Economic Demand

Clean Air in Ports and Port Cities

Wednesday 4<sup>th</sup> June 2014



# Is this a port ?



# Is this a port ?



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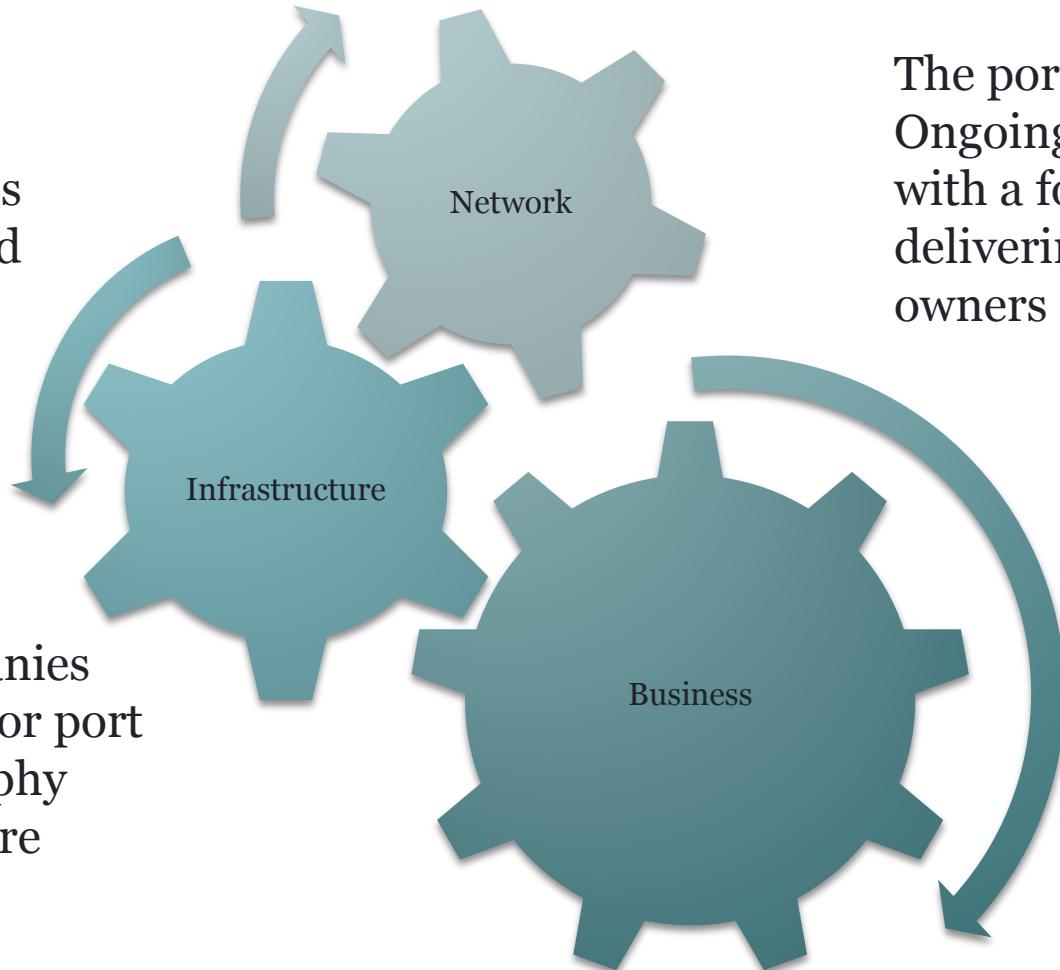


# This is a port !



# 3 roles of an intelligent port

Contribute to local and regional business development and cooperation



The port company.  
Ongoing development with a focus on delivering value to its owners

Servicing companies with a demand for port services, geography and infrastructure

# 1. Network: Port-city integration

- Ports and job creation
- Ports are transport centres
- Ports are not islands
- Multimodality depends on local, regional and national policy and investment
- Ports are business centres
- City development plans
- Buffer zones

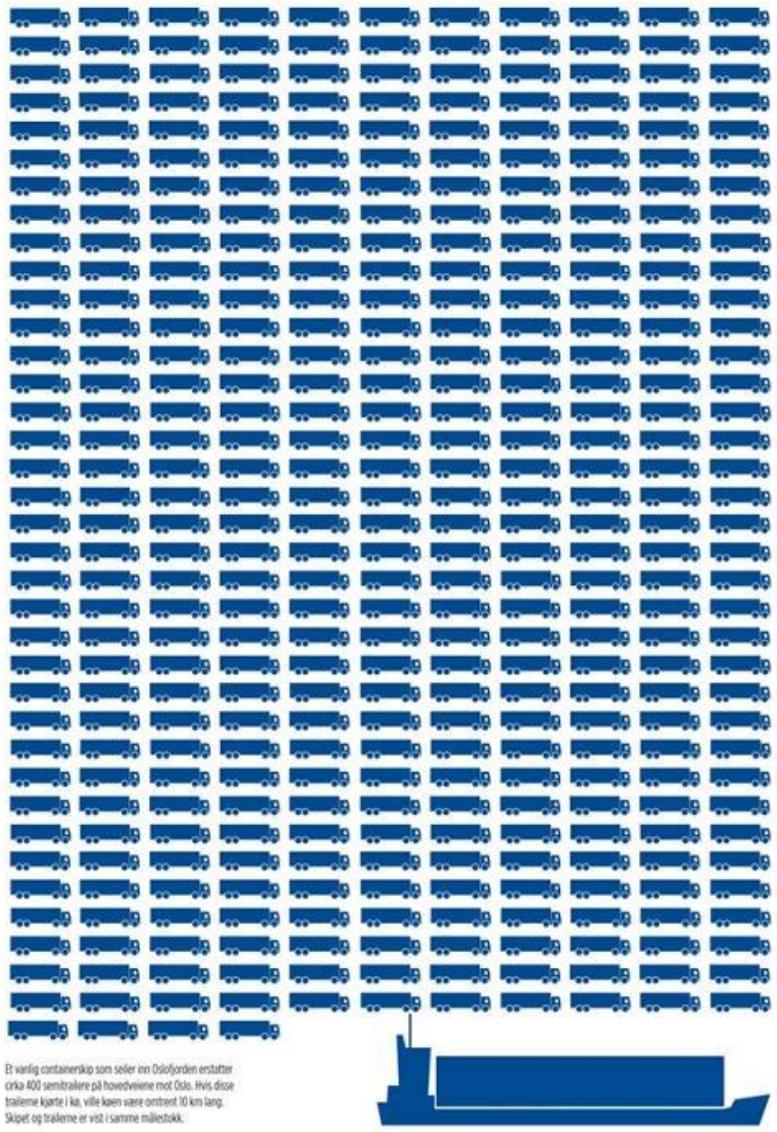
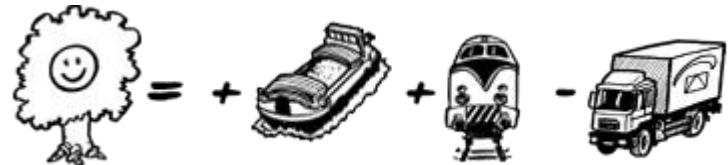
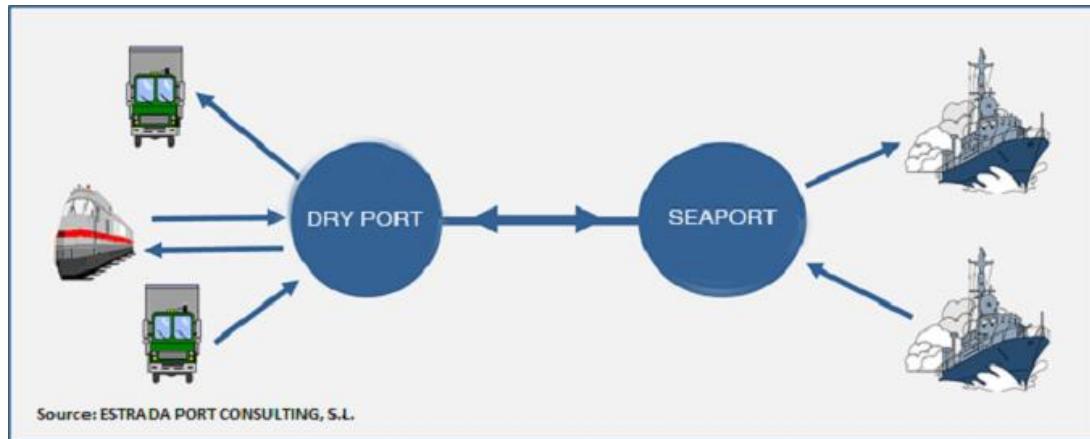


The Competitiveness of Global Port-Cities:  
Synthesis Report

Edited by Olaf Merk



## 2. Infrastructure: Ports are multi modal



# 3. Business: Sustainable ports

## What is a green port ?

EU transport policy: “A green port is a port that succeeds in balancing environmental challenges with economic demands”



## Siim Kallas, Transport Commissioner

“I define a green port as a port where the people planning it and working on it feel committed to minimise environmental impacts and preserve the natural resources for the future generations. A green port requires the support of a proud port community, making the port a bit 'greener' every day, in every way”

# Environment as competition

Environmental work is paying off. It is the experience among 45 leading Danish companies

But many still have not got an environmental management system

## Mandagmorgen

Forside Publikationer Projekter Events Foredrag MM Blog MM TV Abonnement Mød Mandag Morgen

Miljøarbejde betaler sig. Det er erfaringen blandt 45 toneangivende danske virksomheder. Men mange har stadig ikke sat miljøledelsen i system.

### Ny undersøgelse: Miljø er en overset konkurrenceparameter



Af: Bjarke Wiegand (bw@mm.dk) Følg @WBjarke

Let us sum up:

## Environmental management for ports...

- ✓ DOES ANYONE DO IT ?
- ✓ SUSTAINABILITY = ENVIRONMENT + ECONOMY
- ✓ LICENCE TO OPERATE
- ✓ OWN INITIATIVE VERSUS REGULATION

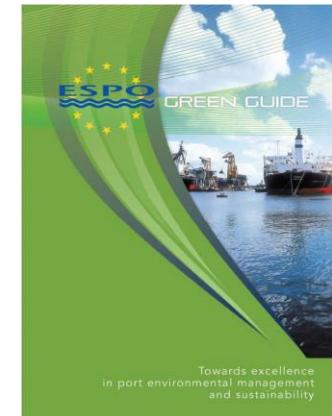
# Complexity in EU legislation

- ✓ The Birds and Habitats Directives, Natura 2000, Life+
- ✓ Sulphur Content of Marine Fuels
- ✓ Pollution from Ships
- ✓ Greenhouse Gas Emissions
- ✓ Port Reception Facilities
- ✓ Water Framework Directive
- ✓ National Emission Ceilings
- ✓ Environmental Noise
- ✓ Soil Framework Directive
- ✓ Regulation on Shipment of Waste
- ✓ Waste Framework Directive
- ✓ Marine Strategy Framework
- ✓ Supplementary Directive on Priority Substances
- ✓ Ambient Air Quality
- ✓ Maritime Spatial Planning

# Own initiative

## ESPO Green Guide – a toolbox

- Best Practice Inspiration (Annex 1)
- Environmental legislation (Annex 2)

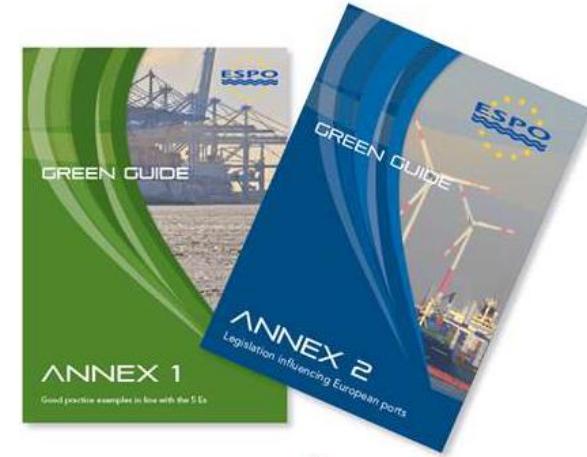


## GreenPort Conference

- Inspiration and sharing experience

## EcoPorts

- Self Diagnosis Method (SDM)
- Port Environmental Review System (PERS)



## PORTOPIA – formerly known as PPRISM

- Key performance indicators also covering ports



# Where to start ?

## Self Diagnosis Method (SDM)

- A check list for ports with the need of a greener strategy
- Benchmark on environmental performance
- Strong on logistics and cooperation
- Currently upgrade of the check list:
  - Onshore power supply
  - Liquefied natural gas
  - Environmentally differentiated port dues



EUROPEAN SEA PORTS ORGANISATION ASBL / VZW  
ORGANISATION DES PORTS MARITIMES EUROPEENS ASBL / VZW



## Self Diagnosis Method (SDM) BENCHMARK 2013-05-10 (78/165)

		PERS	ISO	YES	NO
A.1	Does the Port have an Environmental Policy?			85,9%	14,1%
A.2	IF YES, Is the Policy signed by Chief Executive / Senior Management?			82,4%	17,6%
A.3	IF YES, Is the Policy communicated to all relevant stakeholders?			81,1%	18,9%
A.4	IF YES, Is the policy communicated to all employees?			78,4%	21,6%
A.5	IF YES, Is the policy publicly available on the Port's Website?			72,1%	27,9%
A.6	Does the Policy include reference to: Major objectives?			86,5%	13,5%
A.7	Does the Policy include reference to: Publication of an Environmental Report?			48,6%	51,4%
A.8	Does the Policy include reference to: The identification and control of the port's Significant Environmental Aspects?			75,0%	25,0%
A.9	Does the Policy include reference to: Continual improvement?			90,5%	9,5%
A.10	Does the Policy include reference to: Prevention of pollution?			89,2%	10,8%
A.11	Does the Policy include reference to: Training employees in environmental issues?			77,0%	23,0%

# Self Diagnosis Method (SDM)

- Environmental policy and involvement
- What is the scope – EcoPorts, CSR, sustainable development
- Goals and actual plans
- Environmental awareness and training
- Communication
- Operational dimension – manuals, action plan
- Emergency planning
- Monitoring
- Review and audit

# Certification needed ?

- Next step is an environmental management system running through all port operations, port workers and costumers
- Let the costumer decide next step
  - Port Environmental Review System (PERS)
  - ISO14001
  - European Eco-Management and Audit Scheme (EMAS)

# Communic’action

- Show the evidence
- No green washing –image driven communication on the basis of concrete action
- Environmental management: The port’s environmental challenges and a prioritised plan for e.g. waste, water, energy, transport, etc.
- Action before communication
  - Low hanging fruits: Invest in ”small actions” but visible results
  - Communicate and cooperate
  - Prioritised environmental management



# Environmental priorities

	1996	2004	2009	2013
1	Port Development (water)	Garbage / Port waste	Noise	Air quality
2	Water quality	Dredging: operations	Air quality	Garbage/ Port waste
3	Dredging disposal	Dredging disposal	Garbage / Port waste	Energy Consumption
4	Dredging: operations	Dust	Dredging: operations	Noise
5	Dust	Noise	Dredging: disposal	Ship waste
6	Port Development (land)	Air quality	Relationship with local community	Relationship with local community
7	Contaminated land	Hazardous cargo	Energy consumption	Dredging: operations
8	Habitat loss / degradation	Bunkering	Dust	Dust
9	Traffic volume	Port Development (land)	Port Development (water)	Port development (land)
10	Industrial effluent	Ship discharge (bilge)	Port Development (land)	Water quality

# Port operations - examples

- Energy
  - Optimising the use of the port land
  - Crane power supply by kinetic energy
  - Port user power spending and need
  - LED lighting and night reduction
  - Sun panels
  - Isolation of buildings

# Port operations - examples

- Waste reception
  - Understanding the waste streams and waste types of local industry
  - Sorting waste for re-use
- Dust
  - New technology in cranes – right dosage
  - Cleaning port facilities
- Industry symbiosis
  - Sharing excess heating from industry
  - Bio mass facility running on port waste

# Alternative fuels

- Whats in pipeline?

New regulations:

- SOx, 0.1% by 2015, 0.5% globally by 2020
- NOx, Tier III limitations for all ships built after January 2016
- CO2 emissions
- European S-Directive
- Proposal for Directive Clean Power for Transport

LNG as a ship fuel would comply with all new regulations

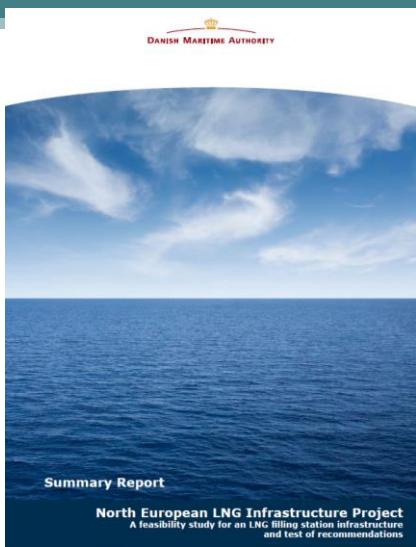
- NOx: 85-90%
- SOx: 100%
- Soot/particles: 100%
- CO2 reduction (20-25%)

Proven technology

- Approx. 30 LNG fuelled vessels in operation
- Boil-off used on LNG carriers

# Alternative fuels

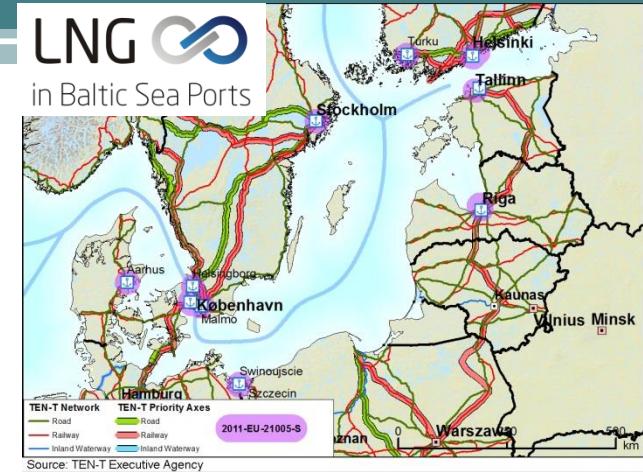
- Several ongoing port projects in North Europe – but still small demand
- Significant remaining challenges – demand and insecurity concerning sulphur rules 2015 and other solutions e.g. scrubber, electricity, dual fuel
- Remember: Many alternatives and solutions concerning sulphur rules 2015 e.g. LNG, scrubber, electricity dual fuel and low sulphur fuel.
- Remember: New technology, big investments and big insecurity



May 2012  
National project with  
EU funding on the need  
for LNG infrastructure

# Projects

Denmark's first LNG fuelled  
Domestic ferry  
October 2014



TEN-T project 2010 – Dec 2014  
Ports in Copenhagen-Malmö and Aarhus  
Feasibility studies are finalised.  
Next step: Operators

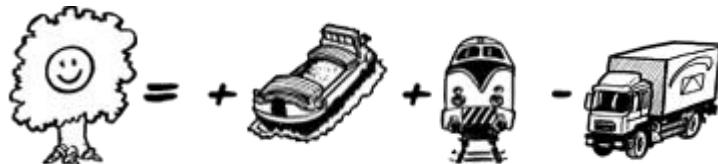


May 2013 LNG ferry  
Bunkering in Norway

Hirtshals Havn  
PORT OF HIRTSHALS

# Conclusions

- Ports are complex
- EU environmental law is complex
- Port sustainability = economy + environment
- Ports own initiative in greening = licence to operate
- Port-city integration forces buffer zones
- Alternative fuels: Several alternative solutions and ongoing port projects in North Europe – but still small demand and insecurity due to young technology





# Thank you for your attention

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