

New challenges and prospects for Global Shipping

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Challenges for a Sustainable Future

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The Consultative Shipping Group (CSG)

Members

Maritime administrations

- **Free and fair competition**
- **Open market access**
- **Non-discrimination**
- *Quality Shipping*

18 Member Countries

Belgium, Canada, Denmark, Finland, France, Germany, Greece, Italy, Japan, the Republic of Korea, the Netherlands, Norway, Poland, Portugal, Singapore, Spain, Sweden and the United Kingdom.

The European Commission also participates.



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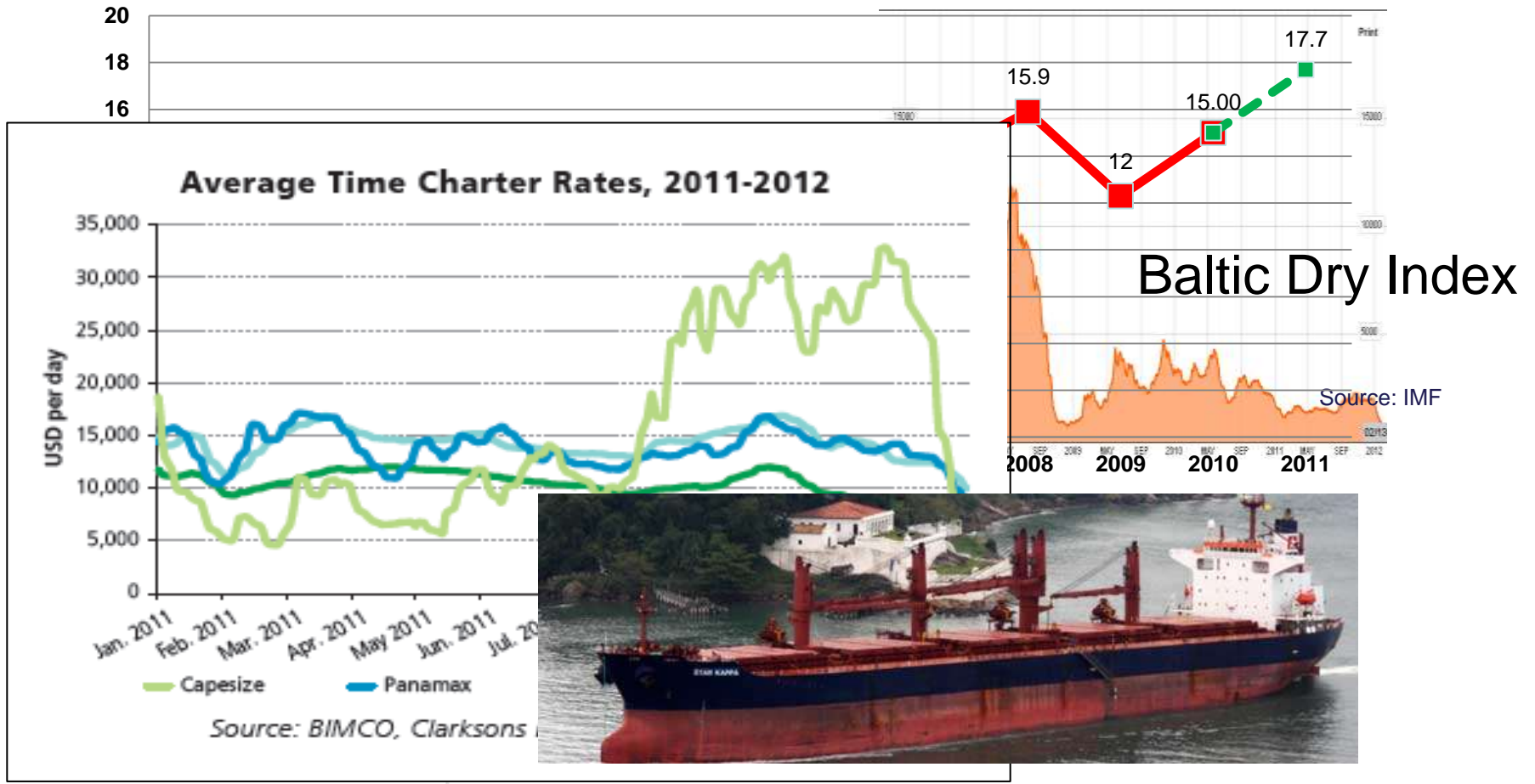
Structure

- **Informal grouping**
- **Exchange views, experience, concerns**
- **Take coordinated action**

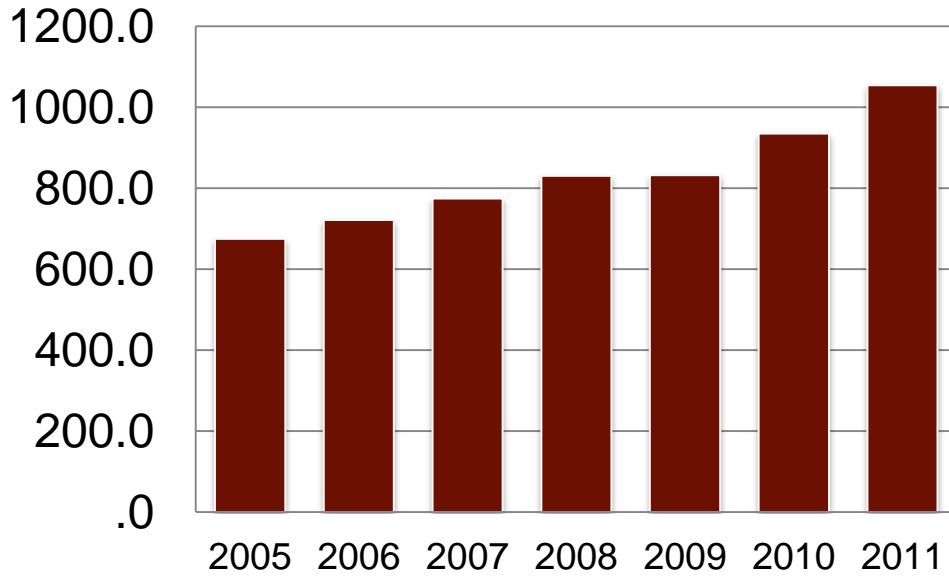




World export of goods

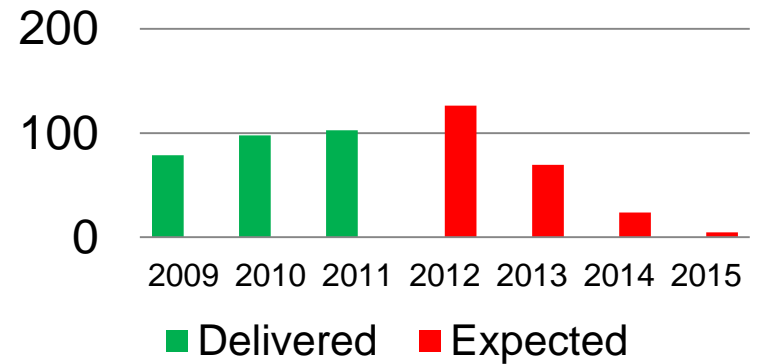


World Tonnage

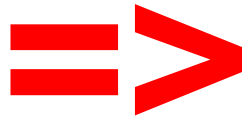


Millions GT

New Tonnage







Environmental challenges

- **GHG and Climate change**
- **Emissions**
- **Ballast water**

Environmental demands will continue to increase

- **Noise is next?**

Increased need for research and development of new technologies and processes



Two layer approach

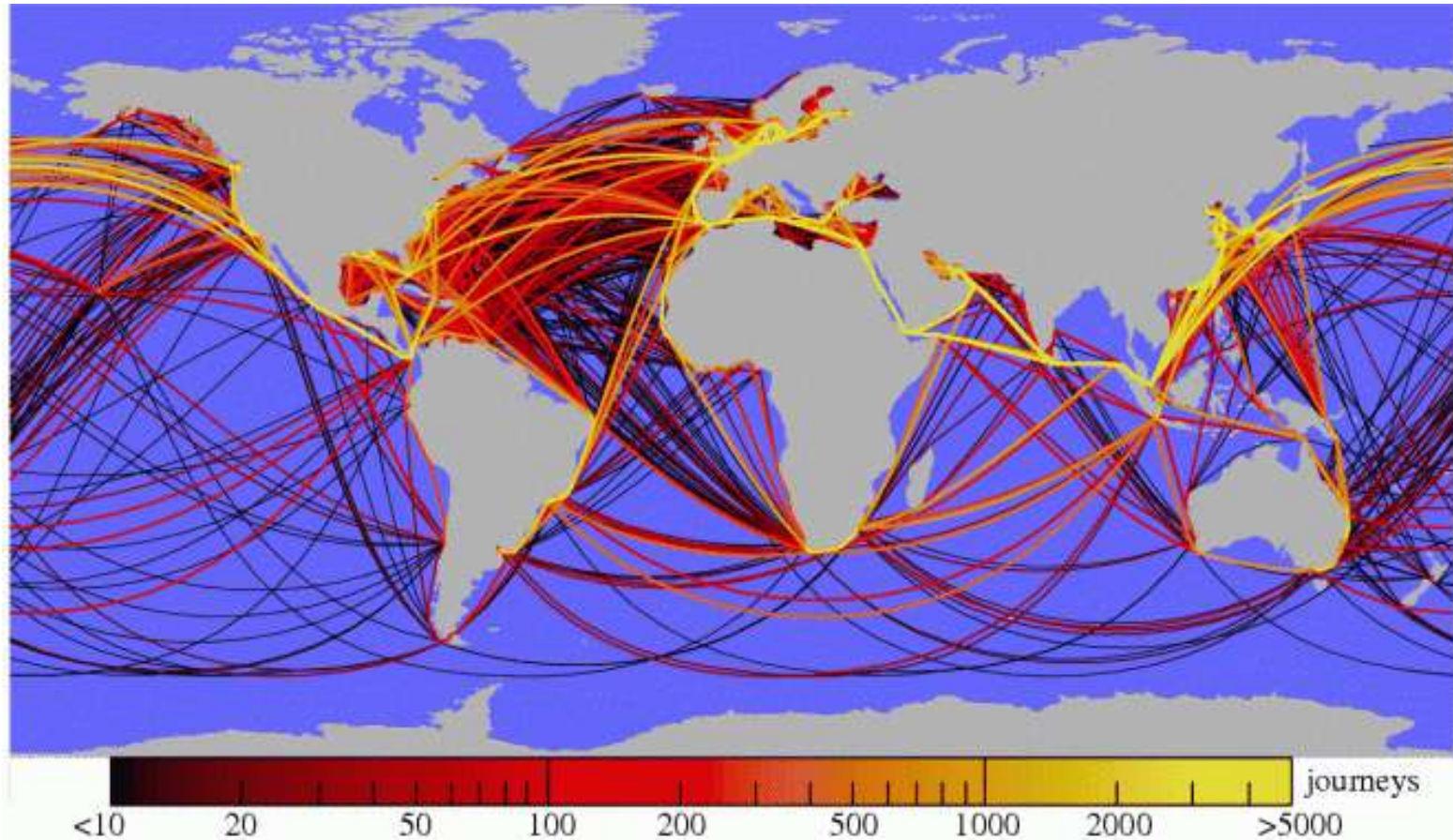
1) Policy and regulation

- Environment agendas driving innovation
- Need for awareness of compliance capability
- International perspective important!

2) Practical solutions



Shipping is global



Two layer approach

1) Policy and regulation

- Environment agendas driving innovation
- Need for awareness of compliance capability
- International perspective important!

2) Practical solutions

- Research, development, innovation, training and education
- Partnerships (Carriers, Shippers, Ports, R&D institutions, manufacturers, government)

Partnership is a key element to innovate and create sustainable growth for the maritime transport chains



GREEN SHIP of the future



- Partnership
 - Across the Danish maritime industry
- Strategies to reduce
 - CO₂ by 30 %
 - SO_x by 90 %
 - NO_x by 90 %
 - Particulate emissions



www.greenship.org

GREEN SHIP
of the future



New ships and Existing ships

Machinery

- WHR, scrubbers etc.

Propulsion

- Propellers, rudders, painting, trim optimization, etc.

Operations

- Route planning, performance monitoring etc.

Logistics

- Better interaction between transport forms



Low emission container ship

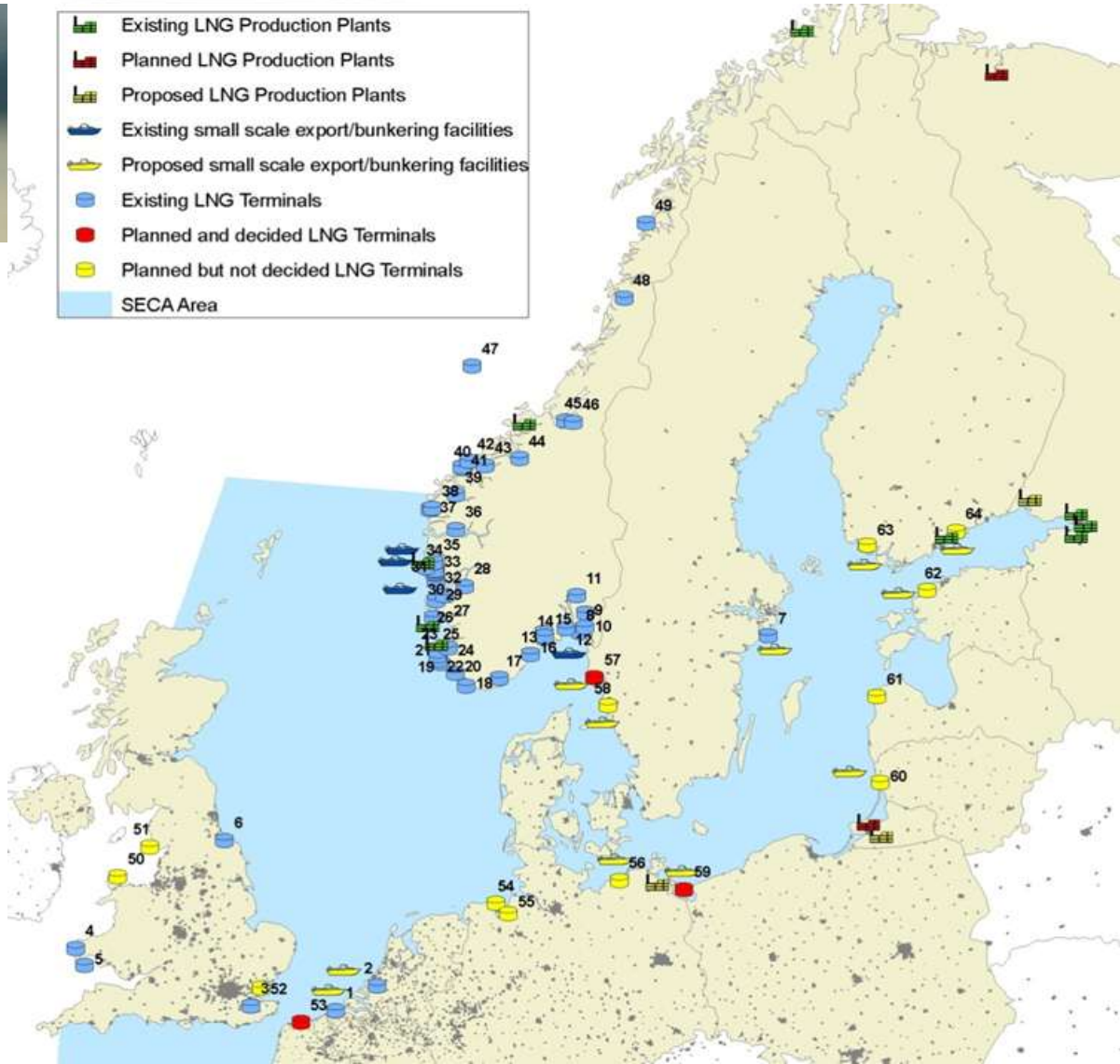
8,500 TEU container vessel, optimised with following technologies:

	Goal	Result
Water in fuel system (WIF)		
Exhaust gas recirculation system (EGR)	30 % reduction of CO2 emissions	Achieved 11-14 %
Waste heat recovery system (WHR)		
Power and Steam turbine technology	90 % reduction of NOX emissions	Achieved 80 %
Exhaust gas scrubbers	90 % reduction of SOX emissions	Achieved 90 %

Extra costs 10 million EURO (approximately 10% increase compared to a 'standard ship' without 'green technologies')

LNG Infrastructure Project

- Existing LNG Production Plants
- Planned LNG Production Plants
- Proposed LNG Production Plants
- Existing small scale export/bunkering facilities
- Proposed small scale export/bunkering facilities
- Existing LNG Terminals
- Planned and decided LNG Terminals
- Planned but not decided LNG Terminals
- SECA Area



Partnership

- Government
- Shipping Company
- Ports
- LNG Terminals
- Class societies
- Equipment Man.

EU funding

LNG Infrastructure Project

Findings....

LNG will be a viable solution

Requires a supply chain

LNG a strategic port service

- LNG providers must be included in the port cluster cooperation
- Liner shipping a key demand mover
- Other end users must be included to create economies of scale

Efficient Ports and Multimodal Transport Chains

- Modern and efficient Ports is a fundamental prerequisite for quality shipping
- Optimized procedures
- Use of ICT
- **It all boils down to efficient logistics!**



Ports are keyplayers!



