

# **OECD Council Working Party on Shipbuilding (WP6) 7 and 8 July 2011**

Workshop on Green Growth in Shipbuilding

**Development of innovative green ships with  
Danish-East Asiatic industrial partnerships  
as drivers**

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# Outline

## Background

## Search for structures to build on

## The industry

- Shipowners
- Shipyards
- Equipment manufacturers

## Possible ways for partnerships

## Sum up

# The Danish Maritime Authority

**An Authority within the Ministry of Economic and Business Affairs**

## **Mission**

To promote health and safety on clean seas and to effectively strengthen the competitiveness and employment of maritime industries

## **Vision**

To set up pointers for future quality shipping

## **Our results matter**

We seek influence and results nationally as well as internationally, and we achieve clear improvements for companies, seafarers and society in general

# Background

**A dialogue between industry, academia, public authorities, etc. and the DMA on the greening of shipping**

- Environment
- Energy efficiency

**A wide range of issues brought up**

**Two strands pursued by the DMA**

- Regulation through the IMO
- Facilitation of research, development and innovation

# The idea

## The competitive edge of green shipping must be shaped

- International regulations
- Market demand

## Development of industrial partnerships

- Companies in the Danish Maritime Cluster
- Shipyards in the Far East
- New built green ships

## Advantages

- Shipowners – state of the art ships
- Equipment manufacturers – reference installations
- Shipyards – a new/modified design

# Why Danish and Far Eastern shipyards?

## Danish shipowners

- Operating 55 Mill. DWT worldwide
- Committed to development of green shipping
- Looking for green first mover advantages
- New innovations have a short window of opportunity

## Danish equipment manufacturers

- World leading in many green segments
- Strongly innovative (market-driven innovation)

## Asian shipyards

- World leading with regard to placed orders
- Building in series

# Energy efficiency

## Contains its own profit rationale

- Exploitation of the potential demands a new balance between operating costs (OPEX) and capital costs (CAPEX)

## Saved energy is gained from

- The ship design
- The propulsion system
- Operation
- Logistics and the transport chain

## Regulation on its way, for example

- EEDI – Energy Efficiency Design Index
- MBM – Market based measures (?)
- SEEMP – Ship Energy Efficiency Management Plan

## Market (customer) demands!

# Environmental issues

## **More complex from a profit point of view**

- Higher costs, but also savings
- Market demands – large shippers as drivers
- Shipowners' CSR profile

## **(Future) regulation – global as well as local!**

- ECAs (Emission Control Areas)
- Ballast water

## **Shipowners' environmental profile as a first qualifier for cargo!**

## **The long-term global trend on environment will continue**

- The public (political) opinion through regulation
- Customers

# The business model for shipbuilding

## A ship serves the market

- Compete within their own class of particulars
- Charterers think in standard ship types

## Series rather than one-off ships in this work

- Design and production planning cost for the first ship
- Economies of scale in building and procurement

## First mover advantages demand flexibility

- In the design process – ordering the right ship!
- In the shipbuilding process to accommodate individual demands
- In the procurement process

# Shipowners – the top of the value chain1/2

## Shipowner dimensions

- From running the ship himself to a financial tonnage provider
- Ship types
- Who pays the fuel?
- A technical backbone to drive innovation or not

## The operational profile of a ship

- A lot of energy efficiency to harvest here
- You must be able to put up demands for design and propulsion
- Day-to-day operation important to establish the knowledge base

## Innovations

- Shipyards are not interested/too expensive!
- A new situation after the financial crisis!

# Shipowners – the top of the value chain2/2

## An ordinary shipowner statement

- We are innovative!

## Shipyards and equipment manufacturers

- Shipowners are moving away from their technical backbone
- Long-lasting relationships are difficult
- Strong focus on CAPEX

## Innovations imply risks

- All innovations cannot be measured during the ordinary sea trial
- Financing institutions evaluate innovations!

## Not all shipowners can foster innovation

- Leaders
- Followers – and no innovation is ever-lasting!

# Shipyards 1/2

**A new reality after the financial crisis!**

**New green development projects with shipowners and equipment manufacturers needed**

- The ship (series)
- The building process
- Economies of scale
- Outsourcing of construction tasks
- Procurement of systems
- The system integrator premium moves!
- Different solutions with regard to quality and price/greening!

## Shipyards 2/2

### **The measurement problem**

- Saving of energy and maintenance costs
- Indicators needed

### **Very reluctant to expand guarantees**

### **More and more regulations will be goal-based**

- Is it an innovation driver?

# Equipment manufacturers

## Basic demands and/or possibilities

- Systems instead of components
- A worldwide servicing system
- Earnings must be pursued through the ship's lifetime

## Strongly innovative

- Shipowners demand reliability from the outset
- Who will take the risk?
- A chicken-and-egg problem
- The measurement problem
- Look for indicators

## Shipyards want a stronger day-to-day cooperation

## Violation of property rights a problem

# Facilitators

**Ship designers**

**Consultancy companies**

**Classification societies**

**Towing tanks**

**Research and development institutions**

**Educational institutions**

**But not risk takers!**

- Can we bring somebody in to facilitate the greening?

# The negative conclusion on innovation

**Shipbuilding a crossroads of conflicting interests**

**Fuel saving cannot be measured "correct"**

**Nobody wants to take the risk**

**The implication**

- Regulation becomes the main driver

**Not a likely conclusion**

# The positive conclusion on innovation

## Many dynamic factors in the market

- The drivers behind green shipping as touched upon earlier

## Regulations will still have a strong bearing

## Goal-based regulation

- A strong focus on the aim rather than the method

## We are talking about top players

- Appropriate resources are needed
- But many ways to exploit the possibilities

## 4 possible partnership models according to the work

- The necessary legal provisions must be stipulated – a horizontal issue
- Delimit the area concerned - not the whole ship

# Model tank assistance for the operational profile of the ship

## The specific trade

- Engine load, draft, weather, current, etc.
- Not an easy task to access

## The EEDI demands a pre-verification report

- The sea trial as verifier

## Towing tank tests

- External and independent expertise
- Covering the operational profile
- Not only the pre-verification condition

# A dynamic makers list

## Makers list

- A negotiated agreement on possible suppliers
- Meeting functional demands

## A dynamic formulation opening up for

- Alternative solutions
- Higher energy efficiency, lower maintenance, etc.

## The shipyard

- Compensation for additional costs, a negotiation issue!
- Respect the design and production process

## All partners have interests

- The shipowners' assessment of the ship and future market conditions crucial

# ESCO models

## Energy Saving Co-Operation Models

### A third party

- Supplier of new energy saving technology
- Guarantee the saving – penalty paid for underperformance
- Paid by the saving in energy costs
- Transfer the equipment after a stipulated period
- The customer gets the saving hereafter

### Used in other industries

- The measurement problem has been solved
- Also uncertainties on measurement

### We need ESCO companies/thinking

- New risk takers in the maritime industry?

# Open book cooperation

**A horizontal application**

**Innovation creates uncertainties**

**Define for the innovation concerned**

- Accountable costs
- The margin for indirect costs
- Transparency in the accounting system

**Capabilities**

- Shipyard
- Equipment manufacturer

**Long-lasting relationships create mutual trust!**

## Sum up

**The incentive structure is not straightforward!**

**Different capacities among stakeholders**

**Innovation is crucial and many sources to harvest from**

**Regulation as the bottom line**

**There are gains above the bottom line!**

**Partnerships a possible way ahead**

- To put focus on possibilities
- The areas must be delimited
- Uncertainties must be "regulated"
- Create mutual benefits

- **Thank you for your attendance**