'Environmental Challenges facing Sea Tourism'

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LIFE MATTERS

Strategic landscape

- Global financial challenges
- Social-political issues
- Upward pressure on fuel and other costs
- Increasing public focus on “green" issues
- Proliferation of regional and local requirements different from international agreements
- Human capital considerations

Meeting regulatory & technical environmental requirements

Mandatory

Non-Mandatory yet

Short term Environmental challenges - linked

- Air Quality – SOx, NOx, PM etc.
- Climate Change - Energy

Note: There are many other challenges

Energy is also a medium term issue

Air Emissions Reduction Control

- scrubbers versus Low S fuel

- Owner versus commercial operator – different answers and questions
- Charter rates, routes and demands, ECA frequency etc.
- Fuel costs versus cost of fitting scrubbers
- Operation of scrubbers – remember that NOx regulation might affect your choice

Shore Power (“Cold Ironing”) considerations

- Ports need to meet air quality targets also
- Source of shore power must be “cleaner”
- Emergence of regional regulation, examples – USA CARB, EC
- Standardisation of connections necessary
- Cost-benefit analysis
- Grid power surge risks

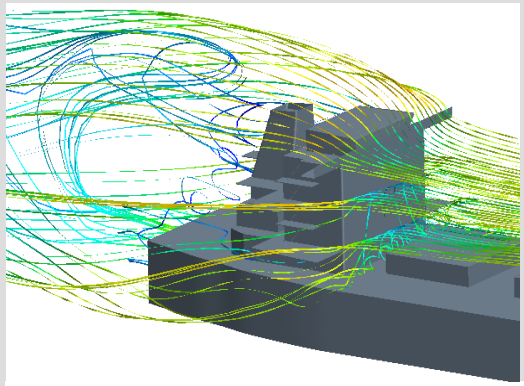
What will possible future regulation look like?

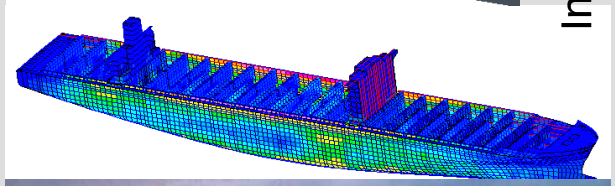
Impact on ‘global ship’ that can trade everywhere?

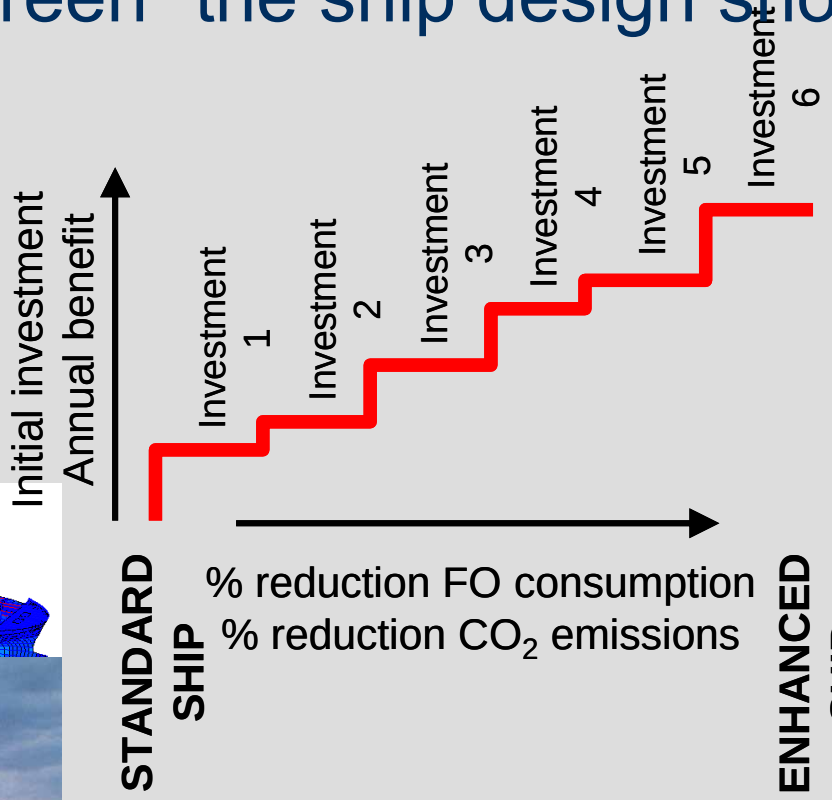
Energy – resources

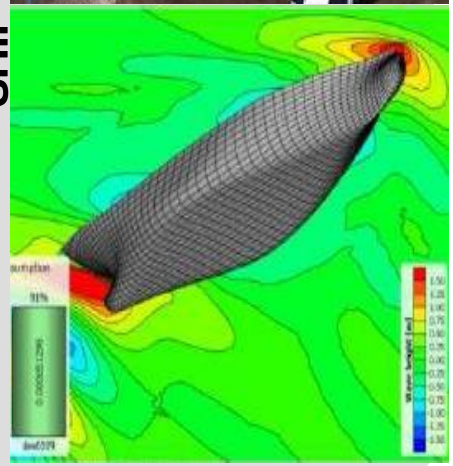
- Fuel costs v Speed
- What will be fuel and fuel mix used in :
  - 5 years?
  - 30 years?
- Consumption/Efficiency
- Energy security issues – impact on supply?
- Bunkering location - a specific choice rather than when needed?

Decide how “green” the ship design should be









- *e.g. fuel efficiency*
- *up-front investment to reduce annual operating cost*

What about Market Based Measures (MBMs)?

- **Definition -***"instruments or regulations that encourage behaviour through market signals rather than through explicit directives"*
- **Aim** – *"achieving outcomes through the self-interest of the firms and individuals"*
- **Categories** –
  - *charge systems* - effluent charges, deposit-refund systems, user charges, insurance premium taxes, sales taxes, administrative charges, and tax differentiation
  - *tradeable permit system* - credit programs and cap-and-trade systems
  - *reducing market frictions* -market creation, liability rules, and information programs
  - *reducing government subsidies* - number of specific examples from around the world

Taken from - Prof Robert N. Stavins 2000 as part of The Handbook for Environmental Economic

Market-based Measures under consideration by IMO

1. **International Fund for Greenhouse Gas emissions from ships**, as proposed by Cyprus, Denmark, Marshall Islands, Nigeria and IPTA
2. **Trading with Efficiency Credits based on Efficiency Standards for All Ships**, as proposed by the United States
3. **Global Emission Trading System for International Shipping**, as proposed by Norway and Germany;
4. **Global Emissions Trading System for GHG Emissions from International Shipping**, as proposed by the United Kingdom
5. **Leveraged Incentive Scheme based on the International GHG Fund**, as proposed by Japan
6. **Vessel Efficiency System**, as proposed by the World Shipping Council
7. **Ship Traffic, Energy and Environment Model**, as proposed by Jamaica
8. **Emission Trading System for International Shipping**, as proposed by France
9. **Rebate Mechanism for a Market-based Instrument for International Shipping**, as proposed by IUCN
10. **'Shipping to pay commensurate with its impact'** as proposed by Bahamas

EC - five possible options for action

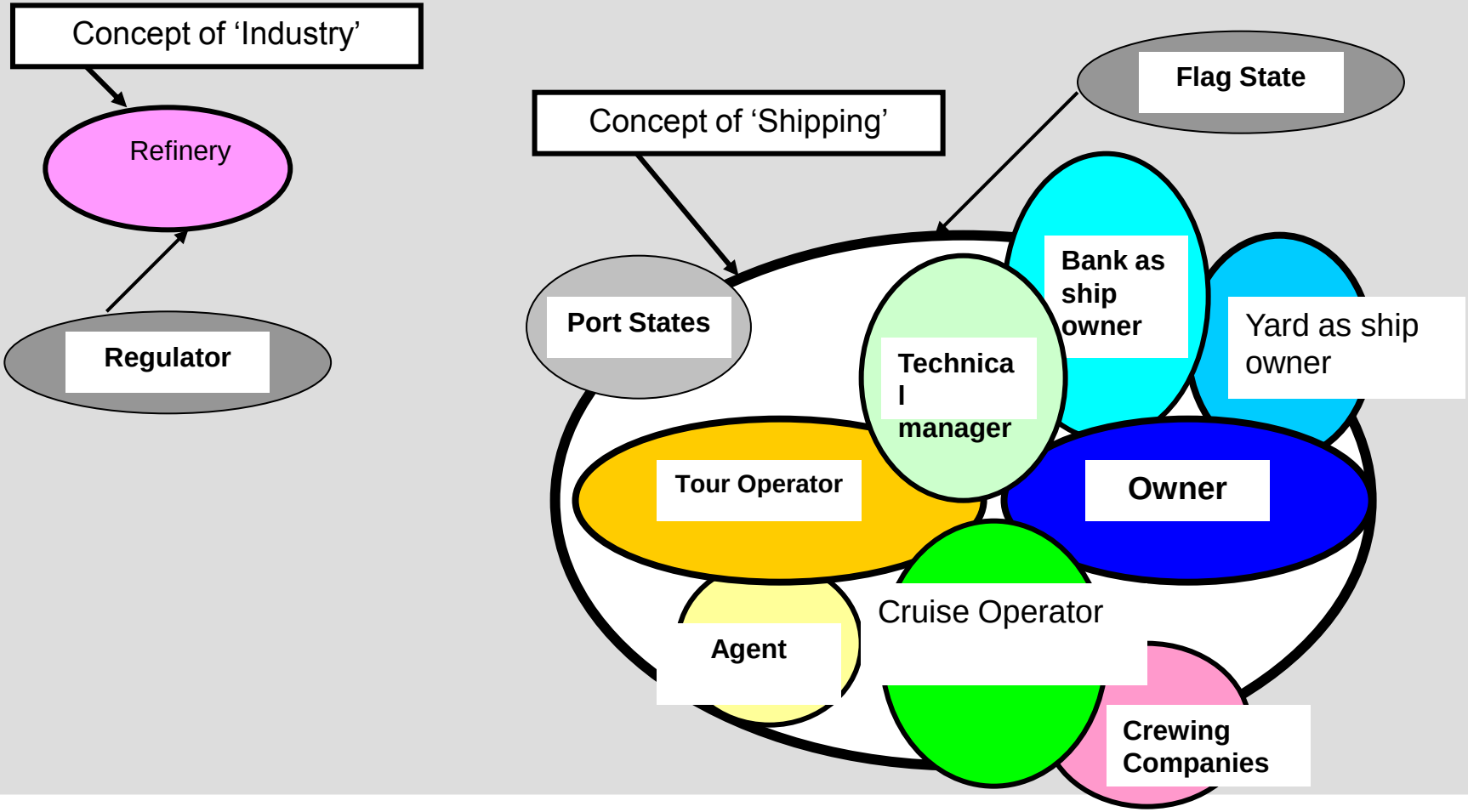
- not all MBM

Policy instruments:

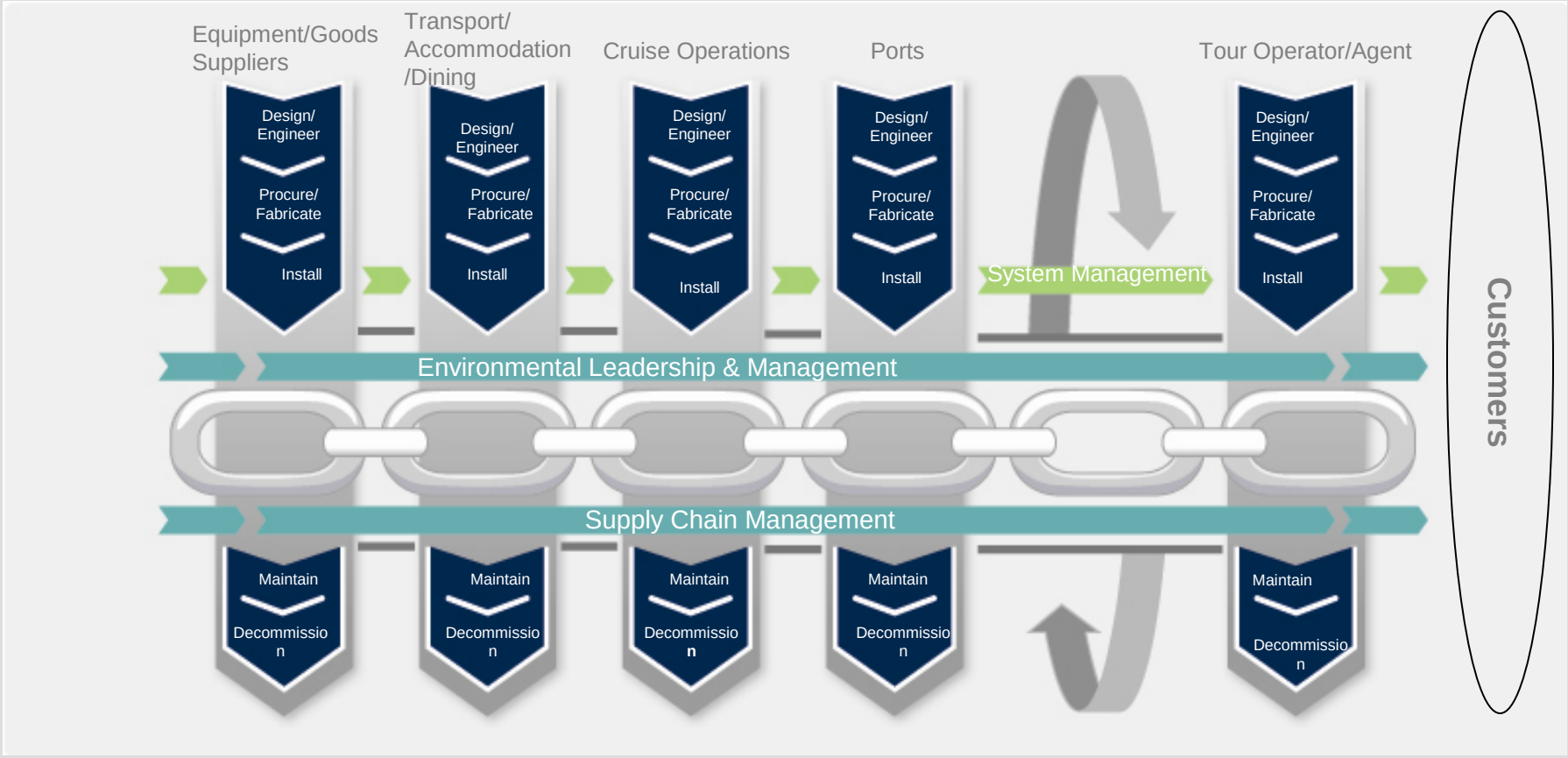
- Cap-and-trade system for maritime transport emissions
- Emissions tax with hypothecated revenues.
- Mandatory efficiency limit for ships in EU ports
- Baseline and credit system based on an efficiency index
- Voluntary action

Taken from CE Delft report Dec 2009

Responsibility – difference



Sea Tourism Supply Chain Management - example



Options for now

Ship operator /owner:

- Planning for forthcoming Air Quality legislation and other regulations e.g. Ballast Water Treatment
- Understand the various MBMs and their impact
- Review management options for evaluation of ships using the various energy tools either in the IMO tool box or others

Ship yard and ship designer:

- Possible improvement in EEDI via better ship and machinery design

Industry bodies:

- Possible change to charter contracts to share cost/benefits from energy efficiencies
- Technical input to MBM discussion to ensure pragmatic decisions

Supply chain community:

- Better management of port infrastructure and logistics

Options for future

Ship operator / owner:

- Plan for implementation of possible regional or IMO MBM – cost of fuel and carbon scenarios and impact assessment
- Consider cost / benefit of other forms of propulsion / ship enhancement / alternative fuels

Ship yard and ship designer:

- Design options to include other propulsion approaches, hull coatings, material choices etc

Industry bodies:

- Build awareness and understanding of how and MBM would also impact – share cost/benefits

Supply chain community:

- Integrated port and logistics chain working together with suppliers to share risks/benefits

An Example of Innovation

- LNG-as-fuel technology is being applied to a ‘first of its kind’ dual fuel ferry for Viking Line. The 56,850 gt ice class ropax will be the first deep sea international ferry to use LNG as its primary fuel and is being designed and built to Lloyd’s Register class at STX Finland’s Turku shipyard, delivery 2013.
- The ferry will operate year round in the Baltic and be built to meet the highest Finnish-Swedish Ice Class IA Super requirements. She will also be the first ship to comply with LR provisional Rules for LNG propulsion.
- We have been involved with the project from the pre-contract stage, working with the owner and the shipbuilder to help assess and develop the design.
- Risk-based approach on bunkering.

Thank you

For more information, please contact:

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