Hvidbog om mere grøn energi i den blå sektor i Vestnorden

White book into more green energy in the blue sector of the West Nordic Countries

The White Book

- Presentation at Information Seminar
- 31st of October 2013
- Working Group for Sparsely Populated Areas

Elements to a Nordic strategy

- How can
  - Political systems,
  - Communities of interest
  - The shipping and trade itself

Support and initiate reduction of harmful emissions from fossil fuels.

We speek of the Oceans (The North Atlantic Sea)

The North Atlantic Sea

What is a white-book?

- A deeper and wider research into an issue.
- The target groups are governments, groups of interest, joint ventures, companies, local communities, - the Nordic council of Ministers and their committees and working groups
- The white-book can be utilized for establishing strategies and plan of actions –
  - Either for the blue sector of the North Atlantic or for sparsely populated areas

- Extension of the Mini-Green Book and various seminars

Why is the issue interesting for the sparsely populated areas (TBO)?

- TBO are deeply dependent on shipping with cargo and fishing with farely big unities of ships
- TBO are dependent on ships specially classed for navigation in Arctic Oceans (harsh climate and icebergs)
- TBO's local communities are small and scattered over an enormeous geography and dependent on imported fuels (fossil fuels) and each one of having stock for perhaps a year or more
- The oceangoing ships are dependent on bringing the fossil fuel on board either for sailing (as propellant) or as cargo

Statistics and illustrations

- No statistic for comparison between countries.
  - 20 % of the imported fossil fuel is for propellants to the deep sea shipping ad fisheries. + propellants fueled at sea – Greenland case.

- Examples of business at small nations/societies
  - Royal Arctic Line A/S, Royal Greenland A/S, Polaroil A/S
  - Smyril Line, Faroe Seafood
  - Eimskip/Samskip
  - Neste Shipping, NO, SE and DK

Who decide or advice?

- Navigation is international, global and perhaps the biggest industry – and a dangerous occupation
- International regulation of navigation has a long history (SOLAS-convention, MARPOL-convention)
- UN's International Maritime Organization – IMO – has responsibility for improving safety and reducing pollution internationally

Who decide or advice?

- National governments
- The maritime organizations
- Economy of
  - the national councils (i.e. infrastructure),
  - the shipping business itself and
  - the market for trading

Why listen to IMO?

IMO states:

- The international markets for the navigation can be biased if each nation/state develops its own standards of measuring the emissions
- National individuality can create barriers against developing sustainable reductions of the CO_2 emissions for the navigation as such in the world.

IMO's package of means

- A design index system for new ships' energy efficiency. The objective is that new ships must fulfill minimum requirements for energy efficiency and less than the existing fleet. A technical part of the package
- A template for the ships' own plans for energy efficiency and energy management. This is for the existing fleet. An operational part of the package
- Ideas for achieving economic goals, which will create motivation and be acceptable for the shipping sector. A market oriented part of the package

- Could the IMO package present a parallel for or inspire the small communities, which are dependent of fossil fuels?
  - A design index for energy efficiency of new buildings and infrastructure
  - A template for the local communitys own energy management
  - Ideas for new economic measures for the community as such and analysis and research for the best reduction strategy for the locality and the society as such

Key principles for regulations

- Effective in order to reduce CO_2 emissions
- Mandatory for all flagstates
- Profitable
- Supporting the free market
- Based on sustainable development without limiting trade and growth
- Oriented towards the objectives with free access to methods
- Stimulating for the technical development and research in the maritime sector
- Open for new technologies
- Practical, transparent, free of fraud and easy to administer

New propellants/fuels or energy efficiency?

Neither small communities/villages of the North Atlantic nor the oceangoing ships are likely to adapt new propellants.

New propellants

- Wind and sun (waves, tidal water) ☹
- Fuel cells ☹
- Nuclear power ?
- Third generation biofuel – seaweed, algae ☹
- Hydrogen ☹

- Air freight ?
- Transportation on land (motorhighways) ☹

Fuels for maritime use

- Fossil fuels are hydrocarbon that can be firm, liquid or gasious
- Combustion produces water, CO2, smoke and ash (i.e. sulphur, particals)
- Gasoline, kerosene and oil can be mixed with alkohol, biomass and water.

- Energy-density is measured in thermal units. Highest density has dieseloil, LNG and Ethanol has half, and lowest density has batteries.

Energy efficiencies

- The motor
  - Waste heat recovery systems
  - Monitoring and automatic information systems
  - Optimizing the lubricating of the cylinders
  - Valves can be more effective
  - Other fuels and new fuels
  - Modifiing machines to a lower load

Energy efficiency

- The electricity, valves, pumps and aircondition/freezing
  - Automizing can optimize the actuel consumption to the present use
- The ships hull
  - A slim hull is positive for the speed
  - The paint can sustain less friction
  - Cleaning the hull under the waterline

Energy efficiency

- Propeller and rudder
  - Frequent cleaning of the propellers
  - New propellers may fit old ships
  - Effective cooperation between propeller and rudder
  - Optimizing of gear and shaft generator

- Eco-sailing
  - Better weatherforecasts and planning of the rute
  - Reducing the speed
  - Short distance to the fishing areas instead of long distance

Energy efficiency

- Trim
  - Disposition of cargo and ballast (water)
  - Calculations on steering, actual or in laboratories

- Fishingtools
  - Alternative tools, new fishing methods can also support the sustainability of the living ressources

Energy efficiency

- Education and certificates
  - Behaviour and awareness towards the environment and pollution
  - Energy and evironment management in all matters on board
  - Old ships can be upgradet through energy management
  - New ships should be constructed according to energy indexes
  - Ships should live up to international standards
  - The ship's captain or company commit themselves to proper procedures for the evironment and the daily operations
  - Energy control by experts

Pollution, cleaning & disposal

- Sulphur - scrubber or perhaps LNG
- Nitrogen oxides - catalytic converters
- Filters

- Ballast water
- Fouling
- Water & sewage

Cross boarder means in cooperation

- Regulations
- Support systems
- Change in behaviour
- Thriving for joint objectives, scientific research and activities for developments
- Road mapping the barriers against energyoptimizing
- Road mapping the barriers against new fuels and propellants

Cross boarder means and cooperation

- Optimizing the infrastructure – very important for the sparsely populated areas. Harbours, transportation, shipyards, electronic and other services and facilities for the marine sector
- Processing of the new fuels
- Testing of new technology
- Pilot projects at land and on board

Cross boarder collaboration

- Nordic strategies are also international
- Nordic collaborations share knowdledge
- Nordic strategies are holistic
- Nordic strategies can initiate collaboration on infrastructure, service and disposals
- Nordic strategies will listen to small communities and their needs
- Monitoring is an important element for changes

Thank you