



Concluding remarks

Craig Eason

Editorial Director, Fathom Maritime
Intelligence

These are the concluding remarks from myself as the Moderator of the World Maritime University's Maritime Energy Management (MARENER) conference and, while reflecting the comments and information taken from some of the speakers and presenters during the two days, should not be seen as reflecting the position of any speakers or author papers, nor of the faculty or staff of the World Maritime University.

This is just one representation of the direction of the debate and indication of the path that those engaged in the future impact of shipping and other related industries on the environment may need to consider.

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Three roads

- There are three interrelated routes to reduce shipping's environmental footprint:
 - Increase energy efficiency (Data: Amass it, Assess it and act on it)
 - Cleaner fuels or use abatement. – LNG, technology improvements ongoing and needed
 - Employ renewable energy – Is LNG a technology cul-de-sac. Regional patchworks could emerge, and help meet the demand on shipping not using its carbon budget
- These three routes happen in parallel and each one should not be at the expense of another. Examples of all these are seen within the WMU Marener conference.

Responsibility

- Shipping has a responsibility – we are all part of society, as well as part of shipping
- There are technologies available and there are ones under development. An open mind is an essential tool
- Shipping interconnects with other ocean industries, so a holistic view is useful, maybe necessary

Global roadmaps and regional leaders

- The IMO is developing its roadmap, but it has challenges. Will it deliver a solution in time to appease European parliamentarians and help with the commitment that remains implied but unwritten into the Paris Agreement.
- While the regulatory arena should develop internationally there is a clear notion that examples in environmental policies in society, industry engagement and technical result are being demonstrated regionally. In fact while the IMO is about global regulations, it is also about regional support (i.e. Glomeep and MTCCs) for developing policies that help develop environmental infrastructure, capacity and know-how
- Sweden – fossil fuel free dream.
- Samsø – a fossil fuel free reality

Life cycle thinking

- Life span of a ship is a serious issue that has to be factored into vessel, fleet and industry energy management plan
- But everything starts with the design, the right design.
- New ship types are emerging. Powerships and barges offer societal benefits – although they do not offer clean energy yet. Hospital ships, offshore wind farm support vessels.
- Cradle to grave environmental management thinking
- Shipowners can not do this alone, it relies on many other industry stakeholders/actors

Sticks and carrots

- Regulators have a role in promoting good industry governance, both amongst themselves and into the shipping and ocean industries
- What role for port state control and for state injections of incentives for energy efficiency into shipping as well as the greater society as a whole?
- Consumer and customer pressure is growing to demonstrate sustainable visions
- Banks (green funds) and insurance (risk) having more of a say (insurance sees climate change as a major risk, many banks have green/environmental funds for people and institutions to invest in)
- Rewards, not penalties, for early movers need to be recognised and ensured

The future of LNG and other fuels

- A lot of development in LNG as a marine fuel (storage and carriage)
- Recent market developments have not helped increase of LNG power in newbuildings, but that may changing as bunker prices rise
- LNG is a viable solution for meeting sulphur and Nox emissions rules
- But: LNG is a medium term solution, not going to help shipping meet tougher GHG goals (i.e. carbon budget) as it is still a hydrocarbon fuel
- Use of other fuels and power sources could start to grow.
- The answer is blowing in the wind (growing interest in wind), or is it shining (initial tests on solar power not very promising, but can research change that?)
- Cold ironing (or AMP) from LNG and/or windpower gives ports more options

Ports and other players

- Port congestion and mapping it with AIS: Getting a picture of a problem is a step to finding a solution
- The need for intermodal solutions: Looking at shipping's energy efficiency alone may come at the detriment of other parties in a goods supply chain. (90% of everything comes by sea, but nothing comes by only the sea)
- Virtual arrival, a help or a smoke screen? Is this a solution to a contractual flaw that no one can change? Perhaps a new way of looking at holistic logistics will make this problem void
- There is a need for more logistics governance to see where shipping fits into the big picture

Looking across the industry and industries
There is a role for maritime clusters to engage more in this debate:

- Shipyards
- Ports
- Shipowners
- Cargo owners
- Fuel makers
- Academia
- Technology companies
- Law firms
- Class Societies
- Seafarers
- Shore side ship operators
- Logistics chiefs
- Naval architects
- Software programmers
- Regulators
- Politicians
- Financiers
- Risk advisory experts
- Professors
- Lawyers

Joined up: Move beyond the maritime clusters and look at shipping and ocean governance too

- Ports, people, ships and shipping companies
- Ocean governance and ocean exploitation (need for conflict resolution)
- The growing need for a multipurpose maritime cadastre
- Holistic approach to supply chain management, logistics chain efficiency
- Virtual arrival, sharing a so called benefit because some charter parties are no longer suitable for today's business environment
- Building ships with the future in mind (homogenous designs, autonomous and data centric)

Regulation can not do it alone

We all need to want to make change to make real change



fathom
maritime intelligence

Craig Eason
Editorial Director

E: craig@fathom-mi.com

M: +46 76 045 1445

@shiptech

@fathom