Executing a Scharnow turn: reconciling shipping emissions with international commitments on climate change

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Current 2°C aspirations and 4°C+ emission trends

What does 2°C mean for shipping

How is the industry planning for this challenge

Scale of the difference between ‘rhetoric & reality’

Our role as ‘honest brokers’
“When I look at this $[\text{CO}_2]$ data, the trend is perfectly in line with a temperature increase of 6 degrees Celsius, which would have devastating consequences for the planet.”

“we have 5 years to change the energy system – or have it changed”

Fatih Birol - IEA chief economist

Similar concerns expressed by government chief scientists, PwC, World Bank
The IMO General Secretary’s view on climate change

“Mankind is on the horns of a dilemma. … our collective way of life [is] eating away at the very support system that enables us to live and breathe. This cannot go on. We need to make some tough decisions, we need to make them now ...

Faced with facts we cannot argue against we need to consider our priorities … to make sacrifices; we need to start putting "life" ahead of "lifestyle".

Efthimios E. Mitropoulos 2009
Climate change commitments

- **International**  
  ‘To hold the increase in global temperature below 2 degrees Celsius and take action .. consistent with science and on the basis of equity ‘

- **EU**  
  ‘must ensure global average temperature increases do not exceed preindustrial levels by more than 2°C’

- **UK**  
  ‘average global temperatures must rise no more than 2°C’
- How do 2 & 4°C futures fit with CO$_2$ trends?
- What is the role of shipping?
Global emission of fossil fuel CO\textsubscript{2} (inc. cement)
Global emission of fossil fuel CO₂ (inc. cement)

... yet emissions have continued to rise (~6% in 2010, ~3% 2011 & 12)

... so what of future emissions?
Global emission of fossil fuel CO$_2$ (inc. cement)

Energy system design lives (*lock-in*)
- Supply technologies 25-50 year
- Large scale infrastructures
- Built environment
- Ships (& aircraft) ~30 years

... and assuming current mitigation plans
Global emission of fossil fuel CO\textsubscript{2} (inc. cement)

~3000GtCO\textsubscript{2} for 2000-2050

~5000GtCO\textsubscript{2} for 2000-2100

... i.e. a 4°C – 6°C rise between 2050 & 2100
Global emission of fossil fuel CO$_2$ (inc. cement)

... outside chance of 2°C
Global emission of fossil fuel CO\textsubscript{2} (inc. cement)

... but new low/zero carbon ship designs developed/demonstrated now

Too early for penetration of new low-carbon ships
Global emission of fossil fuel CO$_2$ (inc. cement)

Year

Billion tonnes CO$_2$

... but new low/zero carbon ship designs developed/demonstrated now

New low/zero carbon ships
What is the industry’s headline response to this challenge?
ICS & IMO’s unambiguous claims on shipping’s responsibility

- “The ultimate goal of the shipping industry is simple: zero accidents, zero loss of life and zero pollution”.

- The unique nature of shipping demands a dedicated and “special global regime” with shipping “treated like a sovereign state in its own right”.

- This sovereign state “will make its fair and proportionate contribution towards realizing the objectives that the [UNFCCC] and the global community pursue”.

- With its mitigation “at least as ambitious as the CO$_2$ emissions reduction agreed under any new United Nations Climate Change Convention”
Put simply, IMO & ICS commit the global shipping industry to:

achieve emission reductions

- equivalent to an average global nation
- … that makes its *fair and proportionate* contribution
- … … to “*hold the increase in global temperature below 2 degrees Celsius*”

*(parking the conflict between ‘Common but Differentiated Responsibility’ and the maritime principal of ‘No Favourable Treatment’)*
Translating this into global mitigation pathways for shipping for reasonable chances of 2°C

468MtCO₂ in 1990 (IMO figure)

Translating this into global mitigation pathways for shipping for reasonable chances of 2°C

If shipping followed global emissions to 2010 then emission-reduction pathways to 2050

Translating this into global mitigation pathways for shipping for reasonable chances of 2°C

But what are the IMO ‘planning’ for?
Two major mitigation policies:

- The ‘energy efficiency design index’ (EEDI)
- The ‘ship energy efficient management plan’ (SEEMP)

How do these fair against the IMO and ICS’s high-level commitments?
Superimposing IMO/ICS plans/projections on their high-level commitments

So based on the IMO & ICS’s flagship policies …

- whilst they make high level statements of reducing emissions
  - from $468\text{MtCO}_2$ in 1990 (866 for 2010) to $90-140\text{MtCO}_2$ by 2050

- In reality they are planning (anticipate) a dramatic rise
  - to between $1300$ & $1900\text{MtCO}_2$ by 2050
Difference in emissions between rhetoric and reality of …

$\sim 1000\% \ (A2) \ \text{to} \ \sim 2000\% \ (A1B)$
Where does this leave us as honest brokers?
We need to go far beyond the IMO & ICS’s flagship policies …

- Acknowledge the scale and timeframe of the challenge
  (>30% reduction by 2030 and ~90% by 2050; fleetwise & c.f. 2010)

- Identify what technical options could deliver shipping’s “fair and proportionate” contribution to a 2°C future

- Reframe the problem – from insurmountable challenges to the status quo, to new opportunities for a low/zero carbon and resilient industry
“Mankind is on the horns of a dilemma. ... our collective way of life [is] eating away at the very support system that enables us to live and breathe. This cannot go on. We need to make some tough decisions, we need to make them now ...