UNCTAD Assessment of Impact of the IMO mid- to long-term greenhouse gas reduction measures on states

Overview of Wind Inclusion into Model

- Wind propulsion is a free energy source.
- WPT can be retrofitted or installed at build with little additional foundation costs.
- Free energy source delivered without requirement for infrastructure, mining, refining, transporting, bunkering or storage onboard.
- Potential to fabricate and install these in all countries with a small light engineering base and yard with the capacity to handle the size of vessel.
- Energy focus not fuel focus required.

The harnessing of a free energy source at scale changes the economic model and facilitates rapid decarbonisation by paying for itself and then contributing to the costs of general decarbonisation.

Leasing or shared saving 'pay as use' models would also drastically reduce/eliminate upfront CAPEX.

This changes the narrative from one of cost and negative impact to a positive cycle.

See CE Delt report regarding combination of speed + wind + efficiency measures + zero-emissions fuels – 28-47% reductions by 2030. Link

General Points Regarding the Impact Study

Existing system and new alternative fuel system benefit from a very unlevel-playing field perspective.

- Externalities are important to factor into the study (externalising costs/internalising profits – e.g., health, climate etc.) – some covered on p145

- Existing subsidies (direct and indirect need to be factored in (currently estimated at $7trill by IMF and growing (up 7% since 2021) – between $500-600 per tonne) however this excludes other external costs such as security and doesn't include opportunity costs and impacts on non-fossil fuel business models. Link

- New fuel subsidies – outside of shipping sector. The development of new fuels are also garnering large subsidies for land-based and possibly aviation use – this inadvertently covers shipping but creates an unfair competitive edge too.
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- New fuel policy capture effects – there is a lot of regulation going through with transition fuels/new alternative fuels integrated but excluding non-commoditized energy sources.

- Inclusion of Risk – tipping points/overshoot – climate, political, security, stranded assets, non-action costs, adaptation costs etc.

- Inclusion of spillage and leakage rates of fuels

- Historic embedded energy and subsidies for FF infrastructure are excluded in assessments – generating inertia/lock-in etc.

- Full LCA required for not only fuels but also the technology/equipment required to use them. Waste cycles, shipbuilding and breaking etc.

Evaluation Points to be Considered

1. Use of Purchasing Power Parity

2. Why the use of GDP – very blunt assessment

3. Use of Total cost of Ownership (TCO), not just fuel costs or Total operational costs – full LCA

4. Time Value of Carbon // Discount Rate – early action incentive.

5. Time Cost - Speed is used rather than voyage optimisation (including weather and wind routing etc.)

6. Time Cost – slowing down a vessel will increase the amount of wind propulsion as a percentage ratio of total energy used – thus additional changing cost structure.

7. Level of asset use elasticity (number of vessels in mothballs/underutilised)

8. Level of port efficiency – Time value used in assessment – is this from port departure to port arrival – does this include offloading delays, demurrage, bunkering etc.

9. Improved efficiency/energy sourcing – increases resilience – how is the value of resilience being evaluated?

10. Are health costs in ports/coastal regions factored into the calculations?

11. What fuel leakage rates used? Are these country specific or generalised – as ratio will be very different. Leakage rates in the supply chain are also very important – local production vs tanker vs pipeline.

12. Level of economic stimulus provided to LDC/SIDs with tech transfer and domestic fuel production and technology fabrication and installations – jobs, capacity etc.

13. Need to include non-GHG climate impactors as these may well be included into measures as environmental regulation tightens (BC, PM, VOcs, H2, Urn etc.)

14. Use of both a 20year and 100-year GWP assessment of fuels emissions (and therefore accurately predict emission costs of CO2e) both adopted in UNFCCC AR6 report.

Scope of Assessment

- National level – ignore impacts are uneven within countries too – different cargo production is concentrated in certain regions, certain regions can only be serviced by ship, etc. Can create socio-political upheaval, displacement etc. – Viscous cycle.

- Regional activity – especially in SIDs there is a lot of interaction and cross region shipping that is relevant and also impacts on domestic fleets of higher fuel prices in general etc.

- Regional Trading bloc – what influence does this have with protectionism, elite club collective support etc,

- STATIC appraisal - SIDs – example – the use of fuel decreases the number of direct routes, therefore more transhipment – with wind that can change – new routes opened up – therefore not a static zero-sum game – other examples include transport via capes when there are canal problems, use of 'trade wind' systems etc.

- Changes in Customer behaviour – factor in the change in consumers of transport – demand for low carbon transport (ESG driven purchasing etc.)

- Increased transport costs can change economic behaviour – highlighted in 2020 report for land-locked countries. However, within all countries, increased transport costs can drive investment into 'value-added' production – e.g., relocating agricultural processing plants closer to production areas. Also move away from low value cash cropping, deforestation etc.

- Include distortions/changes caused by 'Green Corridor' development and potential for exclusion or first mover capture of technology advantages/tech/skills

- Include potential impact of 'wind corridors'

- Assessment of MBMs – are these circular/hypothecated, how are those funds used/allocated to which sectors etc.

Scenarios

AAA) Fuel only transition

BBB) Fuel + CCS

CCC) Wind (both assist and primary) + Fuel

DDD) Wind + Full Efficiency Package + Voyage optimisation

EEE) Graded combination of All four scenarios

Model Accuracy

How accurate was the 2020 report – what KPIs have been used to make those assessments and continue to monitor the efficacy of that modelling approach?