European Commission

Time for international action on CO_2 emissions from shipping

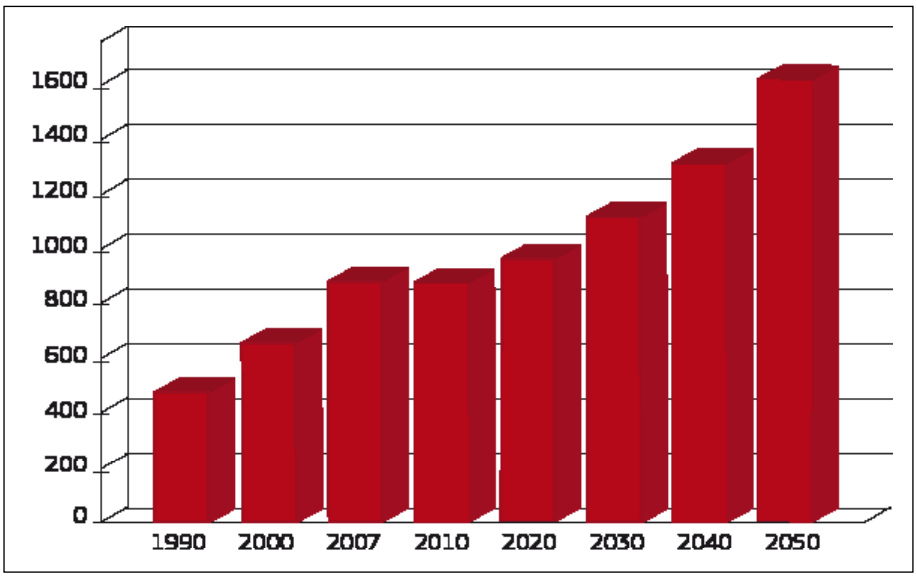
Shipping is a large and growing source of global greenhouse gas emissions that contribute to climate change. There is potential to cut emissions from the shipping sector significantly, yet currently there are no adequate regulatory measures in place to limit or reduce them. The European Union supports the latest discussions within the International Maritime Organization (IMO) for a progressive approach. The Commission's proposal for an EU-wide system for collecting and publishing verified annual data on CO_2 emissions would be an important first step towards further measures cutting shipping emissions and would offer valuable experience for future global action.

The shipping sector's contribution to climate change

While shipping is in most cases more fuel-efficient than other transport sectors, its greenhouse gas emissions are substantial and growing fast. Without action, these emissions are expected to more than double by 2050, due to anticipated growth in the world economy and associated transport demand.

Emissions from maritime transport account for 3% of global greenhouse gas emissions today – equivalent to more than the total annual emissions of Germany – and this share is expected to rise to 5% by 2050. This is not compatible with the internationally agreed goal of keeping global warming below 2°C, which requires worldwide emissions to be at least halved from 1990 levels by 2050.

Rapid growth in CO_2 emissions from international shipping



Estimated CO_2 emissions in million tonnes per year (data sources: 2nd IMO GHG study 2009 for emissions until 2007; MEPC 63/INF 2 for average scenario projections 2010-2050)

What can be done at international level?

There is considerable potential for reducing emissions in the shipping sector through fuel saving techniques which could be achieved at little or no cost (see table). The introduction of such measures would also significantly reduce ship running costs.

Although not all solutions can be applied to all types of ships, and individual saving measures cannot simply be added together, studies show that there is potential to reduce fuel consumption in the shipping sector by up to 55%. This is exceptional compared to the saving potential in other transport modes or economic sectors.

However, the take-up of available cost-efficient technologies and operational solutions remains lower than expected due to a number of market barriers. These include:

- lack of reliable information – ship owners, operators and charterers may not be aware of the potential that exists to be more fuel-efficient or of important factors influencing fuel consumption;
- split incentives – this is where the people benefiting from fuel efficiency are not those paying for it, for example when a ship owner needs to invest, but the fuel bill is paid by a charterer. The incentive for the ship owner to invest is limited unless the charter rate fully reflects the ship's efficiency;
- difficulty gaining access to finance – it may be difficult to attract financing for energy-efficient solutions in the absence of trusted data on the economic benefits of low-carbon technologies.

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Where are we now?

After years of international discussions, the IMO's Marine Environment Protection Committee achieved some important milestones including the adoption of the Energy Efficiency Design Index and the Ship Energy Efficiency Management Plan. However, these measures alone will not lead to an absolute reduction in shipping emissions.

Discussions within the IMO now focus on a more gradual approach, with monitoring, reporting and verification of emissions (MRV) as a first step, further efficiency measures for existing ships, and market-based measures in the mid-to-long term.

Research shows that ship owners or operators are more likely to take measures to improve their vessel's energy efficiency if these are based on accurate information provided by monitoring and reporting schemes. Moreover, reliable information on the effectiveness of technologies in improving energy efficiency also reduces the financial risk for investors.

The 10 most effective existing technical and operational measures to reduce CO_2 emissions from shipping

Solution	Relative CO_2 savings	Savings/Costs per tonne CO_2	Take-up 2007	Take-up 2011
Speed reduction	17-34%	- 280 €/t	0%	50%
Propeller & rudder upgrade	3-4%	- 150 €/t	0%	0%
Hull coating	2-5%	- 280 €/t	0%	50%
Waste heat recovery	2-6%	+ 60 €/t	0%	0%
Optimisation of trim & ballast	1-3%	- 200 €/t	0%	50%
Propeller polishing	1-3%	- 280 €/t	75%	75%
Hull cleaning	1-5%	- 200 €/t	75%	75%
Main engine tuning	1-3%	- 250 €/t	75%	75%
Autopilot upgrade	1-1.5%	- 280 €/t	75%	75%
Weather routing	1-4%	- 280 €/t	75%	75%

CO_2 savings and costs compared to 'business as usual' in 2020 (source: Maddox 2012)

The EU's strategy for reducing global shipping emissions

The European Union believes the IMO remains the most appropriate international forum to regulate emissions from international shipping and urges robust international action to complete the efforts of the shipping sector.

The EU and its Member States are actively engaged in the IMO's recent initiatives for a stepped approach, based on the monitoring, reporting and verification (MRV) of emissions as the foundation of any further measure.

In line with on-going IMO discussions, the European Commission has proposed EU-wide MRV rules as a first step towards building a global system. By yielding further insight into the sector's potential to reduce emissions, it will also provide new opportunities to agree efficiency standards for existing ships.

Once adopted, the proposal would set the legal framework for collecting and publishing verified annual data on CO_2 emissions from all large ships (over 5 000 gross tons) that visit EU ports, irrespective of where the ships are registered. The MRV system is expected to cut CO_2 emissions from the journeys covered by up to 2% compared with a 'business as usual' situation. The system would also reduce net costs to owners by up to €1.2 billion per year in 2030.

The likely timeline for the Regulation's adoption leaves ample opportunity for the IMO to make progress before the EU rules come into force. The Commission has stated its intention to propose amendments to take into account progress at international level.

Further information:

http://ec.europa.eu/clima/policies/transport/shipping/index_en.htm