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What are the emissions of international shipping?

Preliminary results of the IMO GHG study and insights from the IPCC Fifth Assessment Report

How can international shipping contribute to climate protection?
Brussels, 12 September 2014

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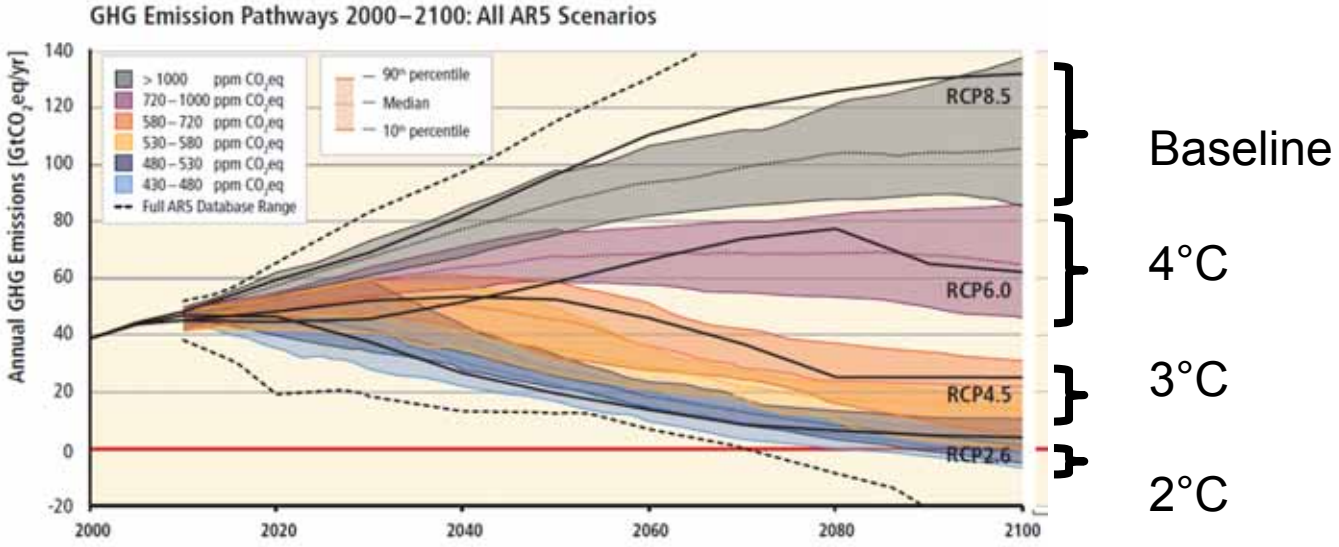
The global picture

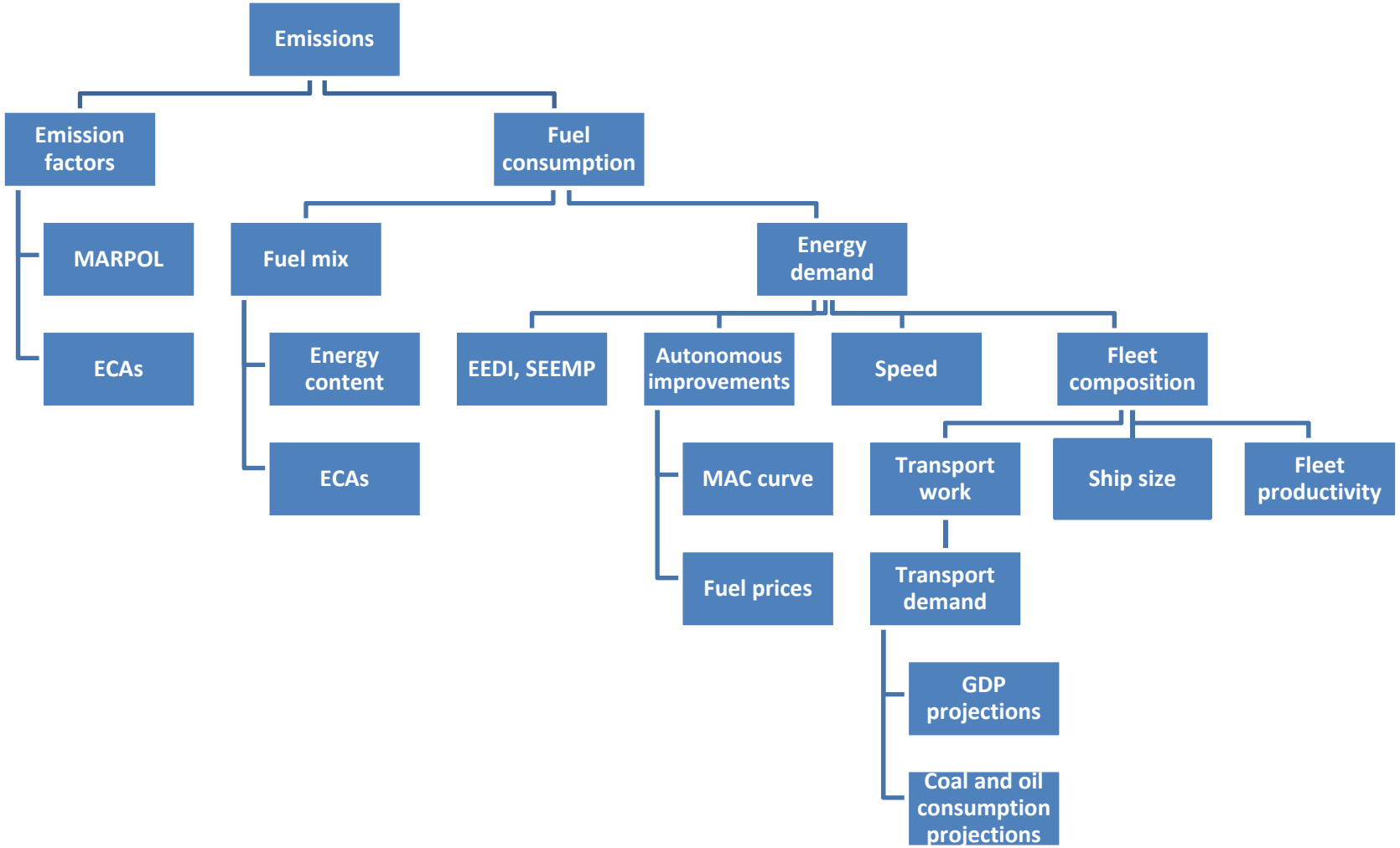
- IPCC fifth assessment report:
  - Limiting the global temperature increase to 2 °C requires global emission reductions of 40% - 70% in 2050, relative to 2010 levels;
  - Scenarios that limit the global temperature increase to 3 °C also require a decrease in emissions; 4 °C requires a halt to the increase



Shipping emissions

- 2nd IMO GHG Study projected rapid emissions increase
- Since it's publication
  - A new set of long-term socio-economic scenarios has been developed by IPCC
  - Larger and more efficient container ships have entered the market
  - New emission projection methods have been developed,
    - Based on transport work activity, rather than tonnes of cargo
    - Taking into account non-linear relations between activity drivers (e.g. GDP) and activity (transport work)
- IMO Study 2014 has developed new projections

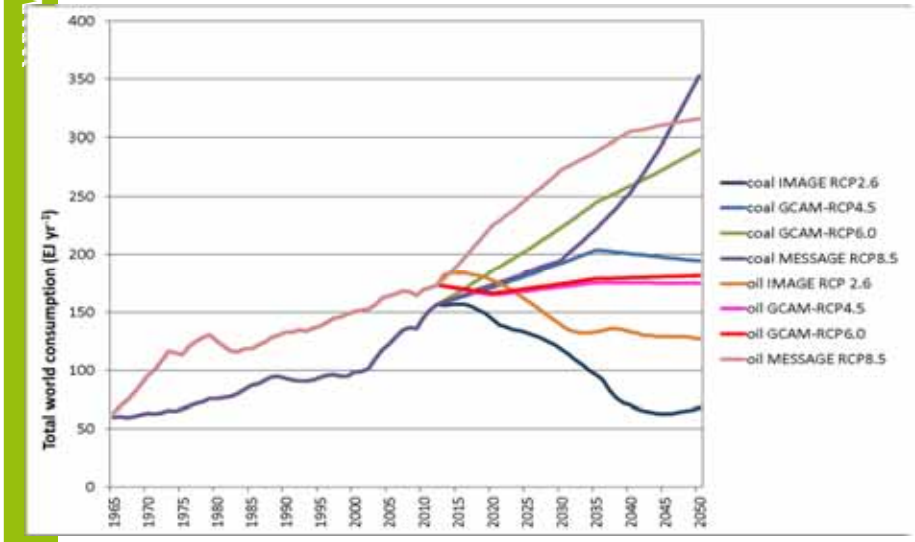
Projection model

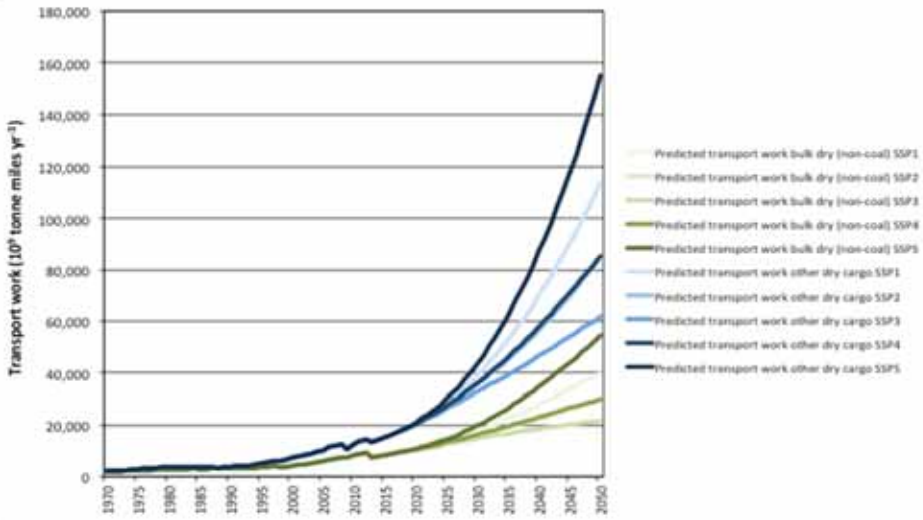


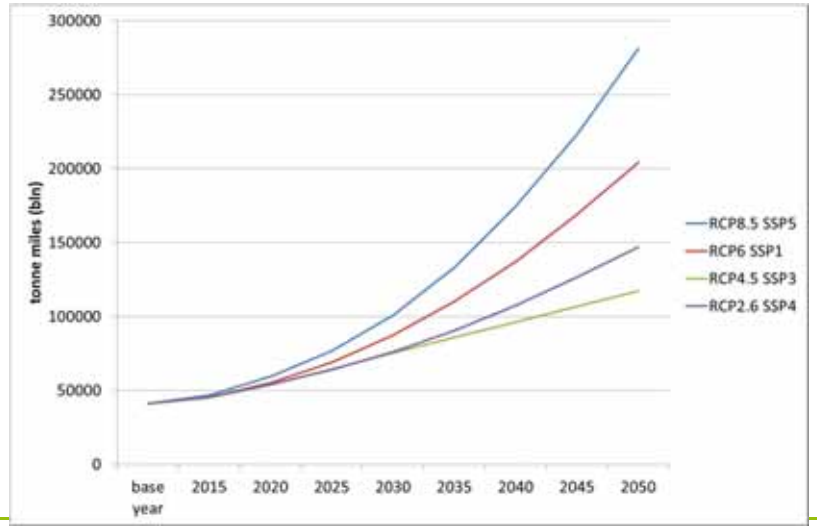
Projection methods

- General
  - Four scenarios on transport demand
  - Two scenarios on ECA/fuel mix
  - Two scenarios on ship energy efficiency
- Projection of transport demand
  - Builds on IPCC's Representative Concentration Pathways (for oil and coal) and Shared Socioeconomic Pathways (for other commodities);
  - Uses historical statistical relations between economic or energy parameters and transport work;
  - Disaggregates demand by three main cargo types: liquid bulk, dry bulk and unitized cargo.

Trade demand projections







Method

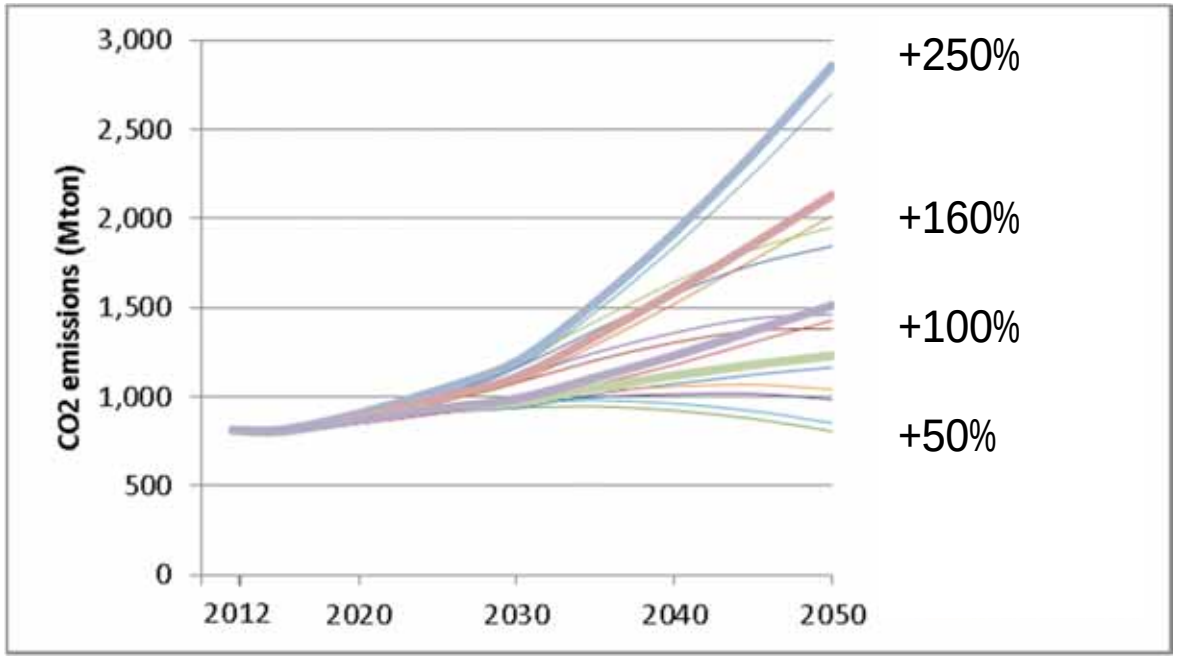
- Projection of fleet size
  - Takes into account developments in fleet productivity; and
  - ship size;
- Projection of ship energy demand
  - Takes into account regulatory efficiency improvements (EEDI and SEEMP); and
  - Autonomous improvements (based on a MAC curve), with speed reduction as one of the measures.
  - Two scenarios: one BAU with current policies and modest improvements after 2030, one with further stringency or additional policies or increased market-driven efficiency improvements.

Method

- Scenarios on fuel mix
  - Bunker fuels comprise residual fuels, distillates and LNG;
  - Since the fuel mix is not determined by price alone, but also by regulatory developments (e.g. ECAs), technical developments and infrastructure availability, fuel mix scenarios have been developed exogenously in the model.
- Emission factors
  - Applied to fuels yield emissions.

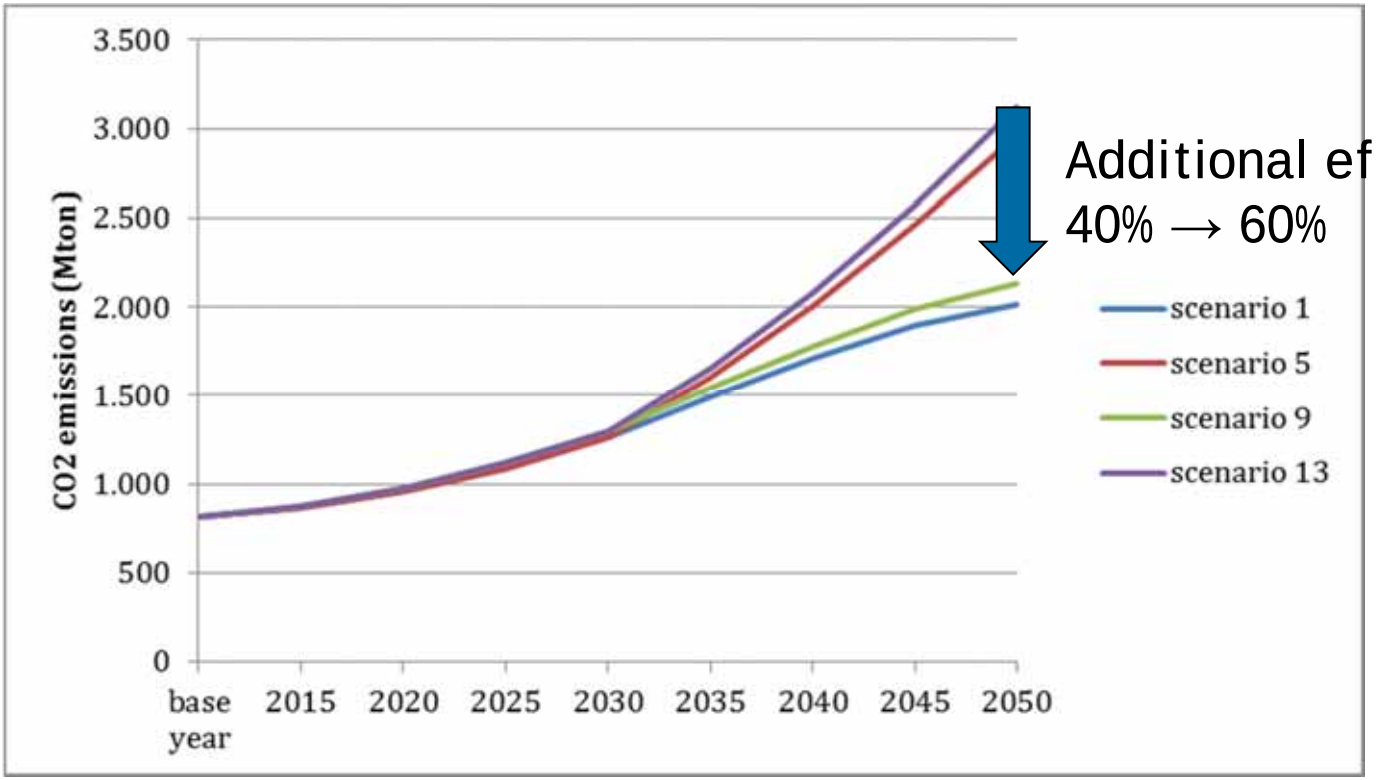
Shipping CO_2 emissions

- Shipping CO_2 emissions are projected to increase by 50% to 250% in the period to 2050, despite fleet average efficiency improvements of about 40%.



  - Findings of the study are not official IMO findings since they have yet to be considered by MEPC

Shipping CO_2 emissions



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Shipping CO_2 emissions

- Maritime emissions projections show an increase in fuel use and greenhouse gas emissions in the period up to 2050, despite significant regulatory and market driven efficiency improvements

- The main driver of the emissions increase is the projected rise in demand for maritime transport, especially unitized cargo

- Efficiency improvements beyond BAU can mitigate CO_2 growth, but will not result in declining emissions

Shipping emissions in a global context

- Currently, shipping accounts for 2% of global GHG emissions.

- When global emissions are reduced in line with a 2°C target, but shipping emissions are allowed to follow a BAU scenario, shipping emissions may increase to 10% (4% - 20%) of global emissions in 2050

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Thank you for your attention!

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