



Part Session B – Technology focus: energy vectors
Part 1 – Low-carbon energy vectors

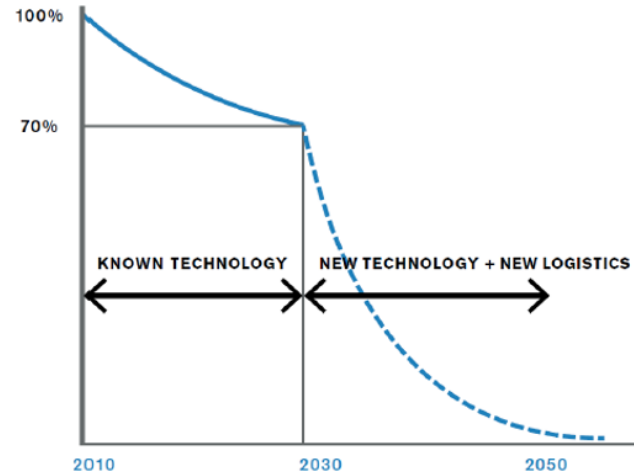
The view of shipowners

- from a swedish perspective

Mr. Fredrik Larsson, Swedish Shipowners Association



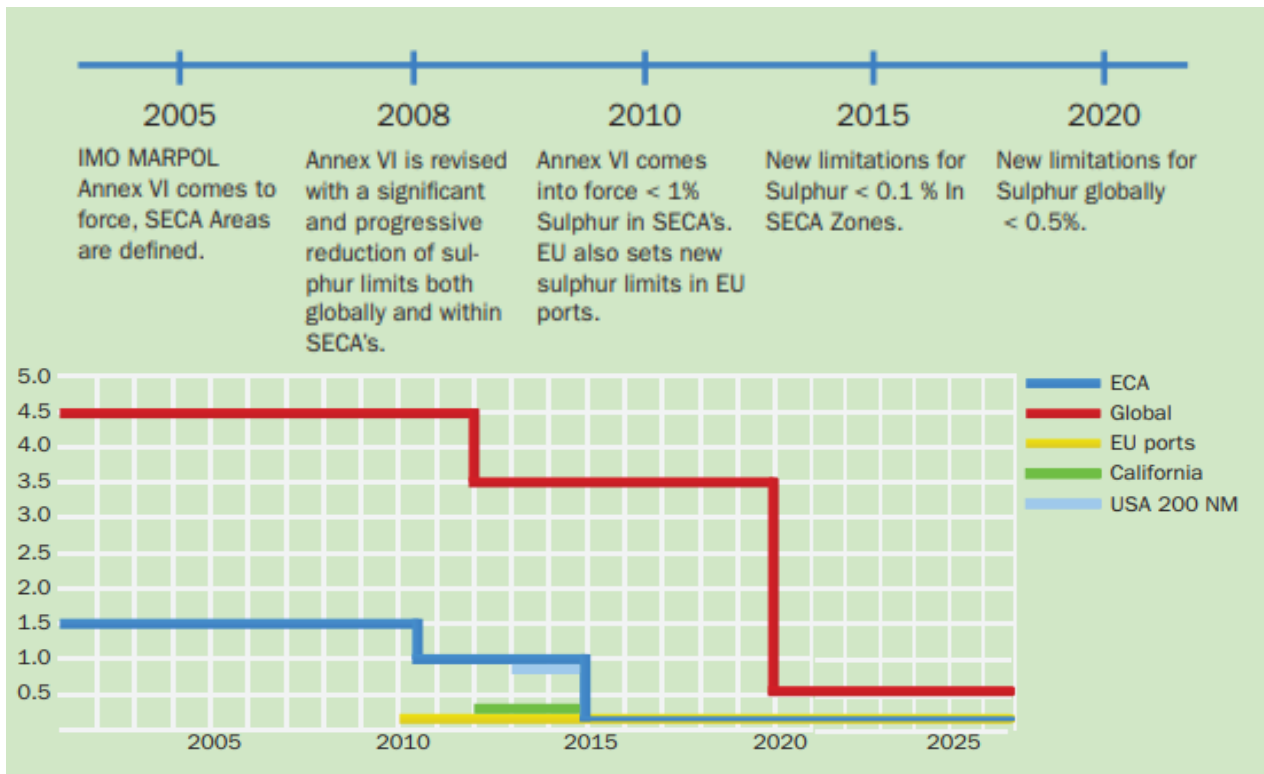
Number 1 - Energy efficiency



Focus today is all about...



But, for us it started with SOx...

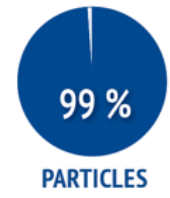
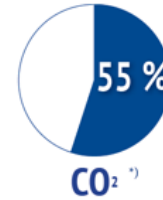


Which led to...

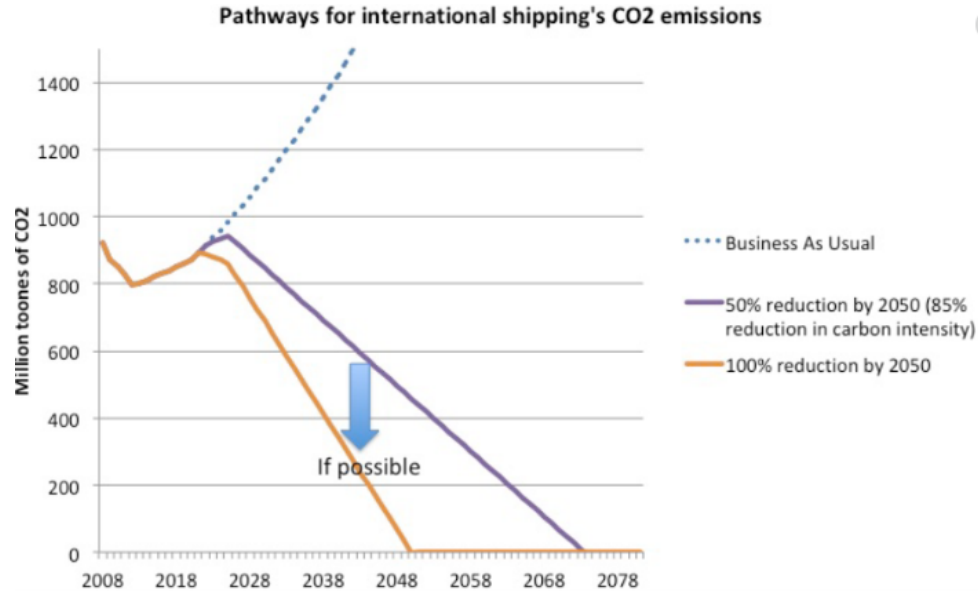
- LNG
- Methanol



EMISSION REDUCTION

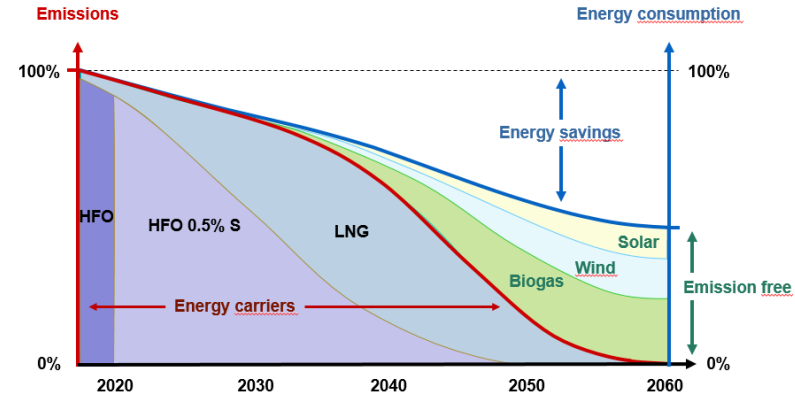


IMO's climate deal...



May lead us to this...

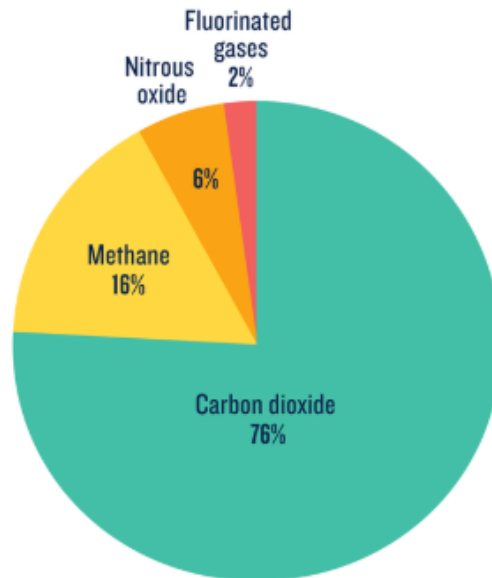
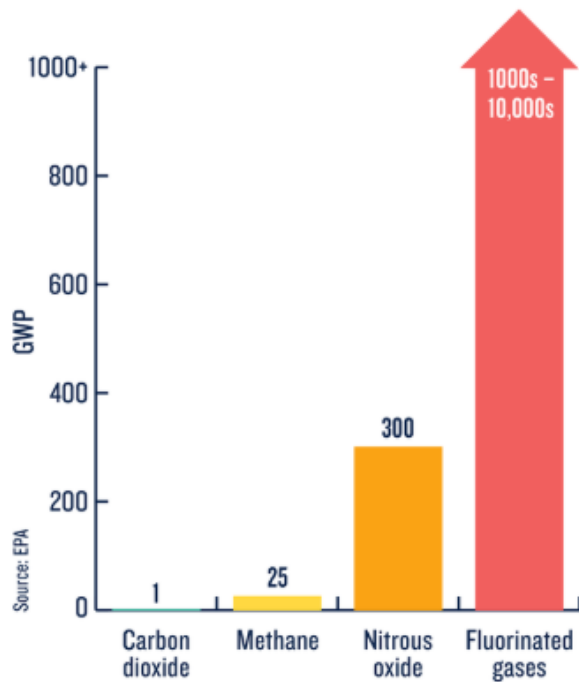
- LBG
- Bio-methanol
- Electricity
- Hydrogen
- Ammonia
- Solar
- Wind



But, where will focus be next...



F-gases...?



Source: IPCC (2014)

Black Carbon...?

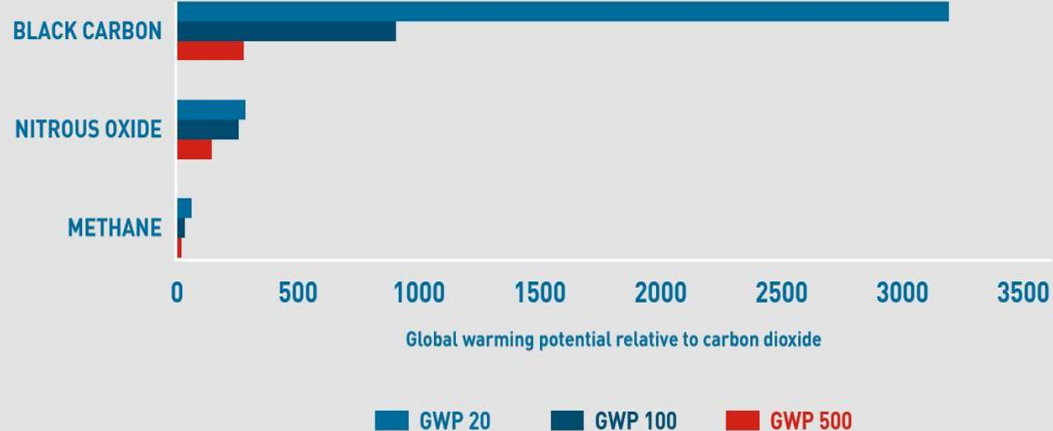
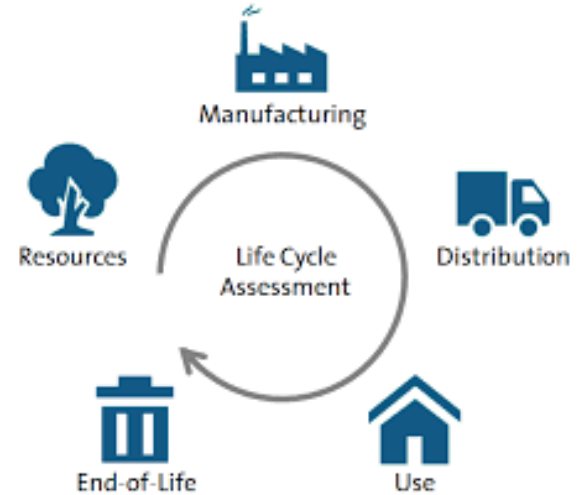


Figure 2 The global warming potential (GWP) of climate pollutants related to transport emissions; the values are relative to carbon dioxide, which has a GWP of 1. The values for nitrous oxide and methane are from the 2014 IPCC Fifth Assessment Report; the black carbon values are taken from Bond et al 2013.

Stepwise approach vs. Holistic

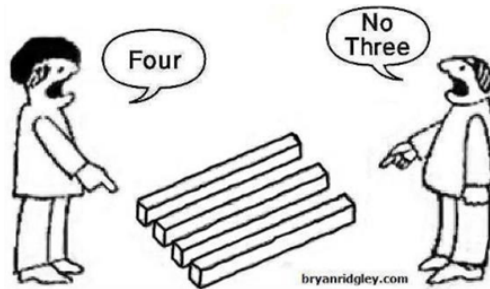


UNFCCC vs. IMO?



PARIS
AGREEMENT

CBDR
CBDR-RC



NMFT

What shipping need more of...



Conclusions

- **We are aware of the problem**
- **Call for a holistic view**
- **Focus on absolute reductions**
- **Prefer technology neutral approach**
- **Financial / Legal aspects are important to consider**
- **Support innovation and reward early movers**
- **Incentivize investments in green technology**
- **Shipping to be regulated by IMO**



