IMO's work on control of GHG emissions from ships – response measures

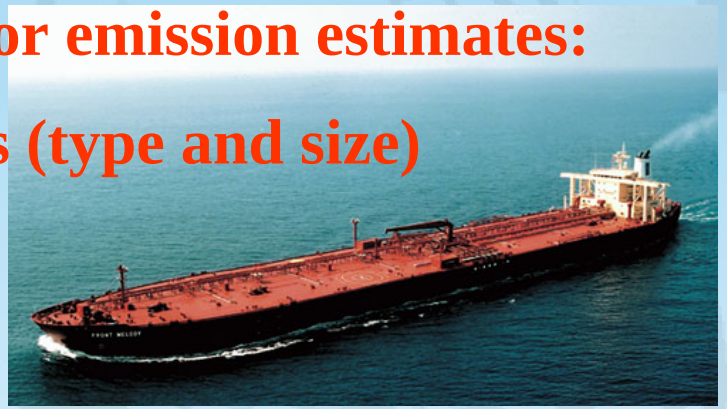
Eivind S. Vagslid
Head, Air Pollution and Climate Change Section
Marine Environment Division – IMO

Joint SBI/SBSTA forum on the impact of the implementation of response measures,
SB 34: Bonn, 7 June 2011

Modeling and scientific basis for response measures

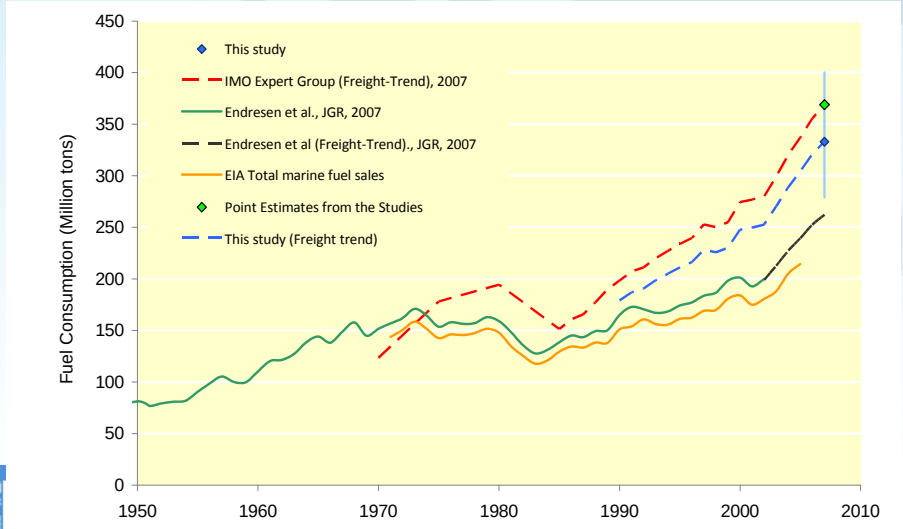
Modeling used for emission estimates:

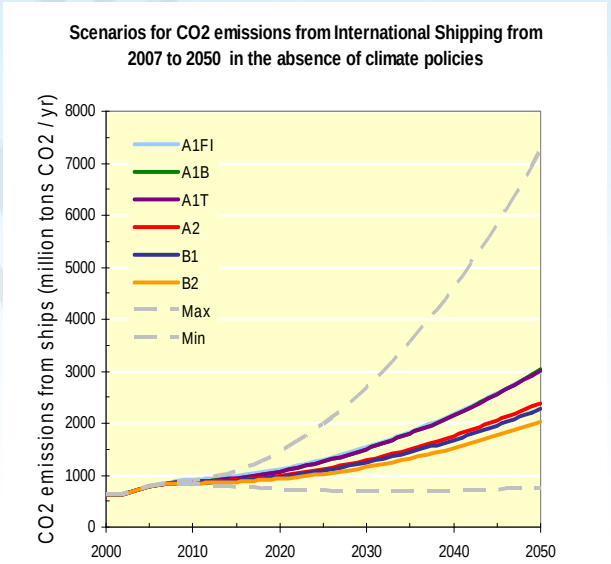
70 ship segments (type and size)



Crude oil tankers:
0 - 9.999dwt
10.000 – 59.999 dwt
60.000 – 79.999 dwt
80.000 – 119.000 dwt
120.000 – 199.999 dwt
200+ dwt

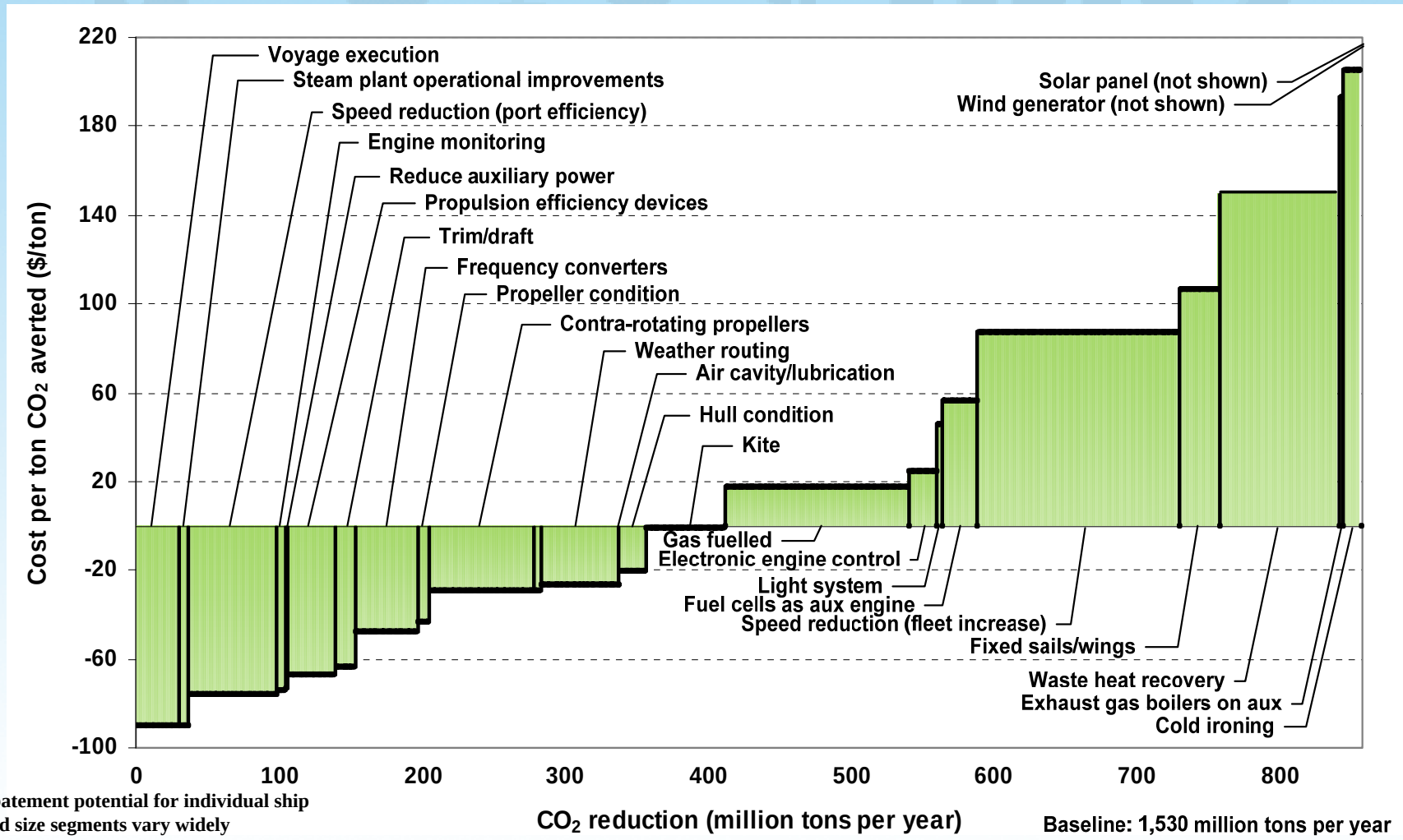
Average installed power → Average operating days → Average load % → Average SFOC → Fuel consumption





Modeling of 2030 – abatement potential and costs

Average marginal CO_2 reduction cost per option - World shipping fleet in 2030 (existing and newbuilds)



Note; abatement potential for individual ship types and size segments vary widely

MBM Expert Group established by MEPC 60

Developed methodology to asses, *inter alia*, possible impacts on end consumers and selected industries, in particular in developing countries, and analyzed 10 MBMs proposed by Governments/ NGOs

Selected commodities and trades:

Iron ore (Dirty Bulk) – Crude oil (Tankers) – Grains (Clean Bulk) – Clothing and furniture (Container)

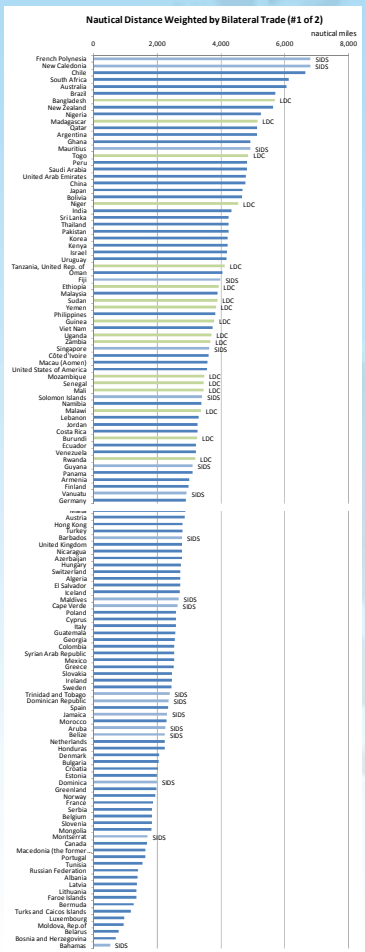
Assumptions and growth scenarios:

Size and composition of world fleet – growth scenarios (IPCC A1B: 1.65% and B2: 2.8%) – fuel and carbon prices – uptake of technology – etc.

Elasticity estimates of freight rate to fuel price increase:

Source	Clean Bulk	Dirty Bulk	Tanker	Container
IMO (MBM-EG)	0.25	0.959	0.324	0.116
UNCTAD	-	1.0	0.28	0.19 – 0.36
OECD	0.28	-	-	-

Nautical distance weighted by bilateral trade



MBM-EG concluded that those countries most affected would be those furthest away from their trading partners

Ad valorem maritime transport cost **Australia**

Cereals	Ores	Crude Oil	Manufactured	Impact 0.16%
11%	20%	13%	5%	

Ad valorem maritime transport costs for **Chile**

Cereals	Ores	Crude Oil	Manufactured	Impact 0.26%
27%	20%	6%	5%	

Average global increase in freight costs equal to a 10% fuel price increase by introducing MBM

Clean Bulk	Dirty Bulk	Tanker	Container
2.7%	9.8%	3.0%	2.0%

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Impact Study by MBM-EG

Cost pass-through range from 10% cent to over 100%

- Great variations between different trades, e.g., ore/containers

Product market	Cost pass-through (%)	Product market	Cost pass-through (%)
Wheat South Africa	10–40	Iron ore China*	52
Wheat Kenya	50–75	Furniture EU	60–90
Wheat Algeria	50–75	Apparel EU	10–40
Barley China	10–25	Crude oil South Korea*	111
Rice Philippines	5–20	Crude Oil US*	73
Maize Saudi Arabia	90–100		

Shipping market	Vivid Economics estimates (average for all routes)	UNCTAD estimates
Panamax grain	0.19	N/A
Capesize ore	0.96	1.00
Containers	0.12	0.19-0.36
VLCC	0.37	0.28

Emission reductions in 2030

Modelled emission reductions across various scenarios

	SECT	VES	Bahamas	GHG Fund	LIS	PSL	ETS (Norway France)	ETS (UK)	RM
Mandatory EEDI (Mt)	123 - 299	123 - 299	123 - 299*						
MBM In sector (Mt)	106 - 142	14 - 45		1 - 31	32 - 153	29 - 119	27 - 114	27 - 114	29 - 68
MBM Out of Sector (Mt)				152 - 584			190 - 539	190 - 539	124 - 345
Total reductions (% BAU)	19 - 31%	13 - 23%	10 - 20%	13 - 40%	3 - 10%	2 - 8%	13 - 40%	13 - 40%	13 - 28%
Potential supplementary reductions (Mt)		45 - 454		104 - 143	232 - 919	917 - 1232	696 - 870		187 - 517

* Included if the mandatory EEDI is adopted by the committee

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Potential climate change financing*

Modelled “remaining proceeds” across various scenarios

MBM	**2020** ($ billion)	**2030** ($ billion)
GHG Fund	2 - 5	4 - 14
LIS	6 - 32	10 - 87
PSL	24 - 43	40 - 118
SECT	0	0
VES	8 - 41	5 - 18
ETS (Norway, France)	17 - 35	28 - 87
ETS (UK)	0	0
Bahamas	0	0
RM	10 - 13	17 - 23

* Excludes financing of out-of-sector emission reductions

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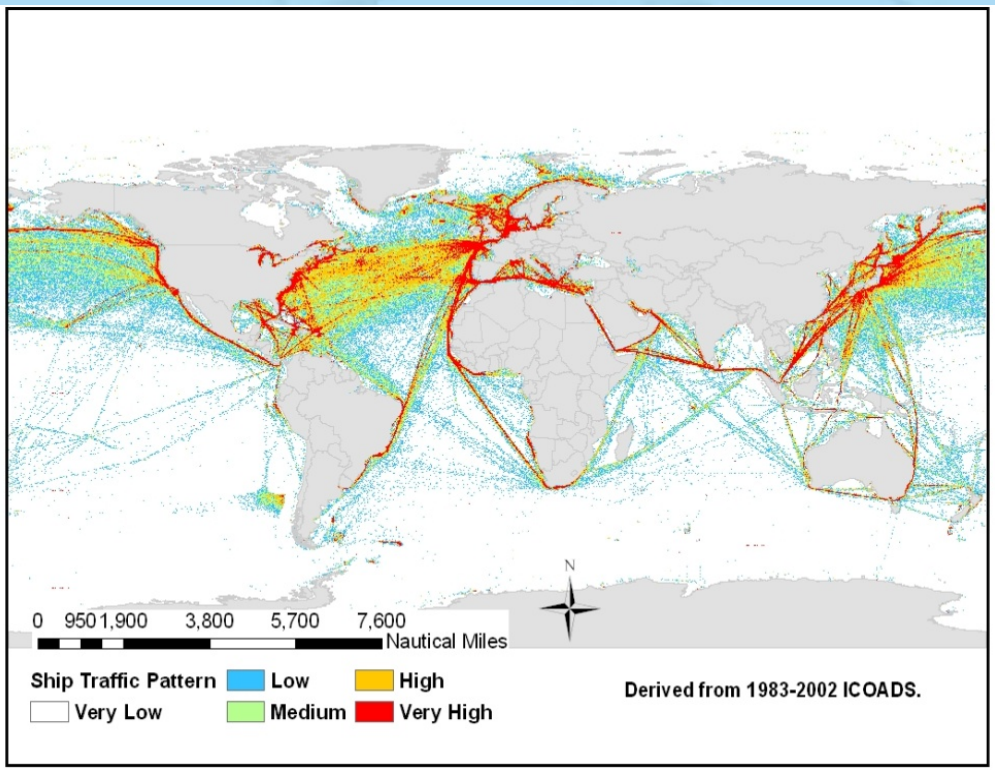
IMO's MBM impact study to continue



MEPC 62 to meet in July and continue work on MBMs and to agree on further impacts studies

Impact on import costs = 10% fuel price

Australia	Chile
0.16%	0.26%

MBM cost in relation to world imports

Emissions (Mt)	Costs ($billion)	Seaborne Imports ($billion)	Costs/Imports (%)
870	17.4	9.393	0.19%

Impacts of an MBM – Conclusions:

Impacts on consumers depend on stringency of MBM, e.g. the carbon price, if it is equal to a 10% increase in fuel price, it translates into a 2 – 10% increase in transport costs and means an increase of 0.0 – 0.2% on end prices and 0.02 – 0.8% of GDP:

Market share – Domestic production - Value-to-weight ratio

Impacts on developing countries:

Will vary by country independent of level of economic development

As a result, developing countries, especially SIDS and LDCs, should not be treated as a collective bloc in assessing impacts

Those that are closer to their trading partners or have large exporters will, in general, be less affected than countries that are further away or have many small exporters

IMO's MBM impact study to continue

Thank you for your attention!

For more information please see:

www.imo.org

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Technical and operational measures

New part to MARPOL Annex VI to incorporate mandatory energy efficiency measures (for all ships above 400 GT):

- Energy Efficiency Design Index (EEDI) for new ships
- Ship Energy Efficiency Management Plan (SEEMP) for all ships using the operational indicator (EEOI) as monitoring tool and for benchmarking

- **Regulatory text finalized by MEPC 61 (Sept 2010)**
- **To be considered for possible adoption at MEPC 62**
- **The need for capacity building to enable maritime administrations to implement and enforce the regulations initially considered by MEPC 61**

Capacity building needs related to technical and operational measures

An initial assessment in line with resolution A.998(25) undertaken by the Vice-Chairman of MEPC and presented to and considered by MEPC 61, which concluded:

- Require updating of national legislation
- Is intended to and will entail introduction of technological innovations and new practices but, the role of the flag Administration would be limited to ensuring that any new ship flying its flag complies with the new regulations
- Administrations may need marginal additional resources (financial and man power), as is the case when any new amendments to IMO conventions are implemented
- The financial burden and cost savings will fall on the industry

Capacity building needs cont'd

As the regulations address ships, not States, the cost of introducing EEDI and SEEMP will be borne by the industry not the flag Administration

Other needs identified:

Training of flag State and port State control officers

Training of seafarers in use of new technologies

Instil in the industry an energy efficiency culture

Recommends that IMO's Integrated Technical Co-operation Programme for the 2012-2013 biennium allocate funding for the training activities and to implement them before the entry into force of the amendments

Planned Technical Cooperation activities 2011 – 2013 related to EEDI and SEEMP

Model course for energy efficient ship operation developed by WMU – to be finalized Sept 2011

Capacity building:

$650,000 for training activities

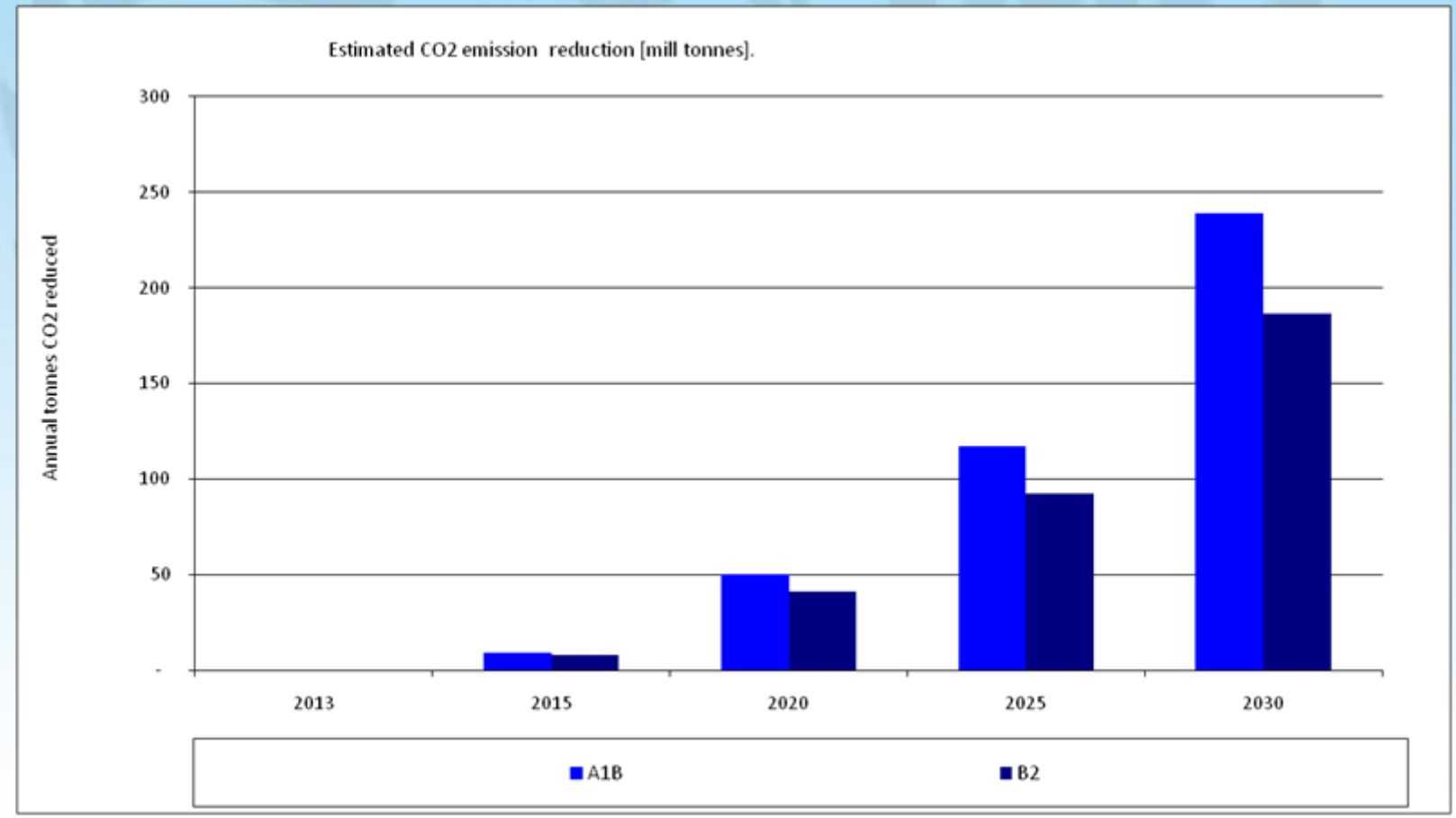
$200,000 for fellowships

Agreement with KOICA for a South East Asian Climate Capacity Building Partnership in the Maritime Transport

- $700.000 for 2011 -2013

Dialog with donors for a global project: $5 – 10 millions

Effects of EEDI: 190 – 240 million tonnes CO2 reduced annually compared with BAU by 2030



EEDI and SEEMP Effects

Scenario: A1B Optimistic