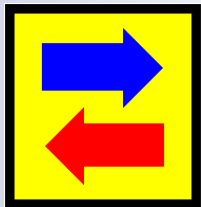


# Sustainable shipping: parallel tracks that cross



Harilaos N. Psaraftis

Laboratory for Maritime Transport

School of Naval Architecture and Marine Engineering

National Technical University of Athens



# Focus

- Greenhouse gas (GHG) emissions from ships
- Recent developments
  - Market based measures (MBMs)
  - EEDI

# Measures for emissions reduction (GHG and other): THE CLASSICAL BREAKDOWN

## ■ Technical measures

- ☐ More efficient (energy-saving) engines
- ☐ More efficient ship designs
- ☐ Optimized hull forms
- ☐ More efficient propellers
- ☐ Cleaner fuels (low sulphur content)
- ☐ Alternative fuels (fuel cells, biofuels, LNG, etc)
- ☐ Devices to trap exhaust emissions (scrubbers, etc)
- ☐ Energy recuperation devices
- ☐ "Cold ironing" in ports

## ■ Operational (logistics-based) measures

- ☐ Speed reduction
- ☐ Optimized routing
- ☐ Several others

## ■ Market-based measures (MBMs)

- ☐ Carbon Tax/Levy on Fuel
- ☐ Emissions Trading Scheme (ETS)
- ☐ Several others

# Some parallel tracks

- Track 1: The SO<sub>x</sub> / NO<sub>x</sub> track
  - Track 1A: SO<sub>x</sub>
  - Track 1B: NO<sub>x</sub>
  
- Track 2: The GHG track
  - Track 2A: EEDI
  - Track 2B: MBMs



# What does 'parallel' mean:

- Discussion in one track is carried out separately from discussion in another, ie without focusing on possible interfaces between the two.
- After all, if two tracks are parallel, they do not cross (or one would assume so)

# The SOx/NOx track (track 1)

## MEASURES

- Low-S fuels (SOx)
- Tier II/III engines (NOx)
- Emissions control areas (Europe, North America)

## SIDE-EFFECTS

- Lose 'cooling effect'
- More CO<sub>2</sub> if less NOx
- More CO<sub>2</sub> by low-S fuel production
- Possible shifts to land-based modes (main example: Baltic)  
→ More CO<sub>2</sub>
- (hello track 2!)

# The GHG track (track 2)

- Track 2A: EEDI
- Track 2B: MBMs
- Thus far, the two have been discussed at the IMO in parallel
- Q: are tracks 2A, 2B parallel?



# Q: are tracks 2A, 2B parallel?

- A: Not really
- Of the 10 MBM proposals on the table at MEPC 62, three (now 2) embed EEDI



# Hybrid MBM proposals



- USA's SECT
  - Japan's LIS
  - WSC VES
- }
- All embed EEDI as part of their formulation
  - Idea: reward ships with good EEDI
- But EEDI is a proposed index for **new ships**
  - If any of these MBM is adopted, EEDI will also be applied to **existing ships** (albeit indirectly)

# Questions:

- How will EEDI be applied to **existing ships**?
- Has the impact of this been assessed?
  - Eg, trials to establish speed at 75% MCR
- Have the mechanisms and the costs for doing so been thought out?
- Who will be for it at MEPC 62?

# Other 'parallel' tracks

■ Q: are the tracks below really parallel?

- ☐ Technical measures
- ☐ Operational measures
- ☐ Market based measures

A: not really

# How does an MBM work?

- It induces ship owners to adopt measures that will reduce CO2 emissions
- These measures can be
  - **operational** (short run) or
  - **technical** (long run)

# ‘Operational’ example

- Impose a Levy on bunkers
- Induces ships to slow steam
- CO<sub>2</sub> is a non-linear function of speed
- Slow steaming will reduce CO<sub>2</sub> emissions



# parenthesis:

- A Levy on fuel will induce slow steaming **automatically**.
- This will not happen with any of the other MBMs, like ETS or the hybrid MBMs

# ‘Technical’ example

- MBM may induce shipowners to purchase ships that are more energy-efficient (better engines, propellers, hulls, etc)
- They might invest in these technologies that would save CO<sub>2</sub>, rather than pay for the MBM  
(equivalent: buying a hybrid car)

# Greece's proposal at intersessional GHG meeting

- Keep on table only Levy and ETS proposals
- Put on hold hybrid MBMs (US, Jap., WSC)
- Discard all others (Bahamas, Jamaica, IUCN)



# Greece's proposal at intersessional GHG meeting

- Keep on table only Levy and ETS proposals
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  - Discard all others (Bahamas, Jamaica, IUCN)
  - **KEEP ALL ON THE TABLE**
- 

# Question

- If a Levy can induce operational and/or technical measures that would reduce CO<sub>2</sub>, **do we really need EEDI?**
- My own personal opinion: **Not really**
  - particularly if EEDI problems are not fixed.

# EEDI problems

- Ref. to G. Gratsos talk (laws of physics)
  - Risk of underpowered ships
  - Risk to safety
  - Underpowered ships may emit more CO<sub>2</sub>
- 
- ICS (MEPC 62): minimum safe speed of 14 knots
  - IACS et al (MEPC 62): minimum power requirements

# But!

- Not clear what happens if minimum safe speed conflicts with EEDI.
- Possibility of conflict very real, as the max. speed to be EEDI-compliant may be below minimum safe speed of 14 knots.
- For VLCCs: down to 12 knots (phase 3 EEDI)

# Economics 101

- Simplest way to reduce CO<sub>2</sub>: **put a price on it** (“polluter pays”).
- If price is equal to **marginal social cost of CO<sub>2</sub>**, reduction will be at least cost to society.
- Marginal social cost of CO<sub>2</sub>: estimates range from \$7/ton to \$85/ton
- Equiv. Bunker Levy: **multiply by 3.11**

# The Levy bandwagon

- Cyprus, **Denmark**, Marshall Islands, Nigeria and IPTA (GHG Fund proposal)
  - Greece
  - Korea
  - (recently) ICS
  - (recently) BV
  - etc
- 
- Still: difficult discussion ahead at MEPC 62



# Fun at MEPC 62

- Need a decision on GHGs
  - EU will act unilaterally otherwise
- Fix problems of EEDI
- Choose an MBM
  - or at least narrow down list
- China, India, Brazil et al strongly oppose both EEDI and MBMs
- Many other topics on MEPC 62 agenda
  - handle more than 200 docs in 5 days

# 35 days to go

## THANK YOU!

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