



Recent and current developments in the regulation of air pollution from ships

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International Maritime Organization (IMO)

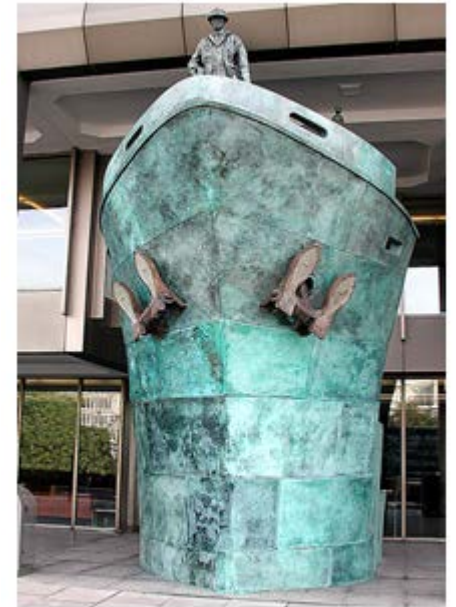


(Source: IMO)



International Maritime Organization (IMO)

- The United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships
- Currently formed of:
 - 171 Member States and 3 Associate Members;
 - 65 Inter-Governmental Organisations; and
 - 78 Non-Governmental Organisations
- Marine Environment Protection Committee - MEPC



(Source: IMO)



MARPOL Convention

MARPOL - Prevention of pollution from ships

Annex I – Oil (2 October 1983)

Annex II – Noxious liquid substances carried in bulk (2 October 1983)

Annex III – Harmful substances carried in packaged form (1 July 1992)

Annex IV – Sewage (27 September 2003)

Annex V – Garbage (31 December 1988)

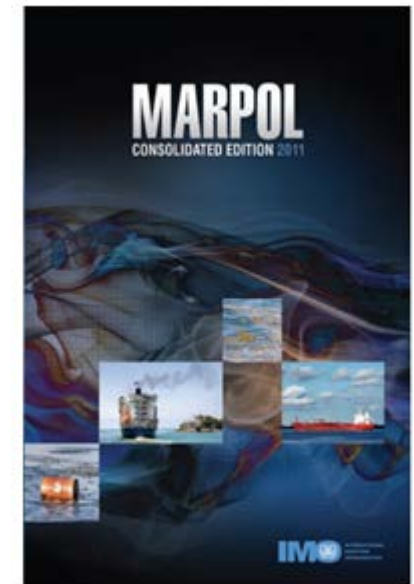
Annex VI – Air pollution (19 May 2005) (88 States – 96.16% of world tonnage)



Annex VI at a glance

- Regulations for emissions from ships:
 - Sulphur Oxides (SO_x)
 - Particulate Matter (PM)
 - Ozone-Depleting Substances (ODS)
 - Volatile Organic Compounds (VOCs)
 - Nitrogen Oxides (NO_x)
- Other aspects addressed:
 - Energy efficiency of ships
 - Shipboard incineration
 - Fuel oil availability and quality
 - Emission Control Areas (ECAs)
 - Reception facilities
- Application:

All ships and fixed and floating drilling rig and other platforms



(Source: IMO)



Annex VI - Emission Control Areas (ECAs)



Recent developments - SO_x control

As of 1st January 2020 - New global sulphur content limit reduces to 0.50% m/m

Compliance options:

- Low sulphur fuel oil
- Exhaust gas cleaning systems
- Other fuels (LNG, biofuels, methanol/ethanol, hydrogen fuel cells)



Recent developments - NOx control

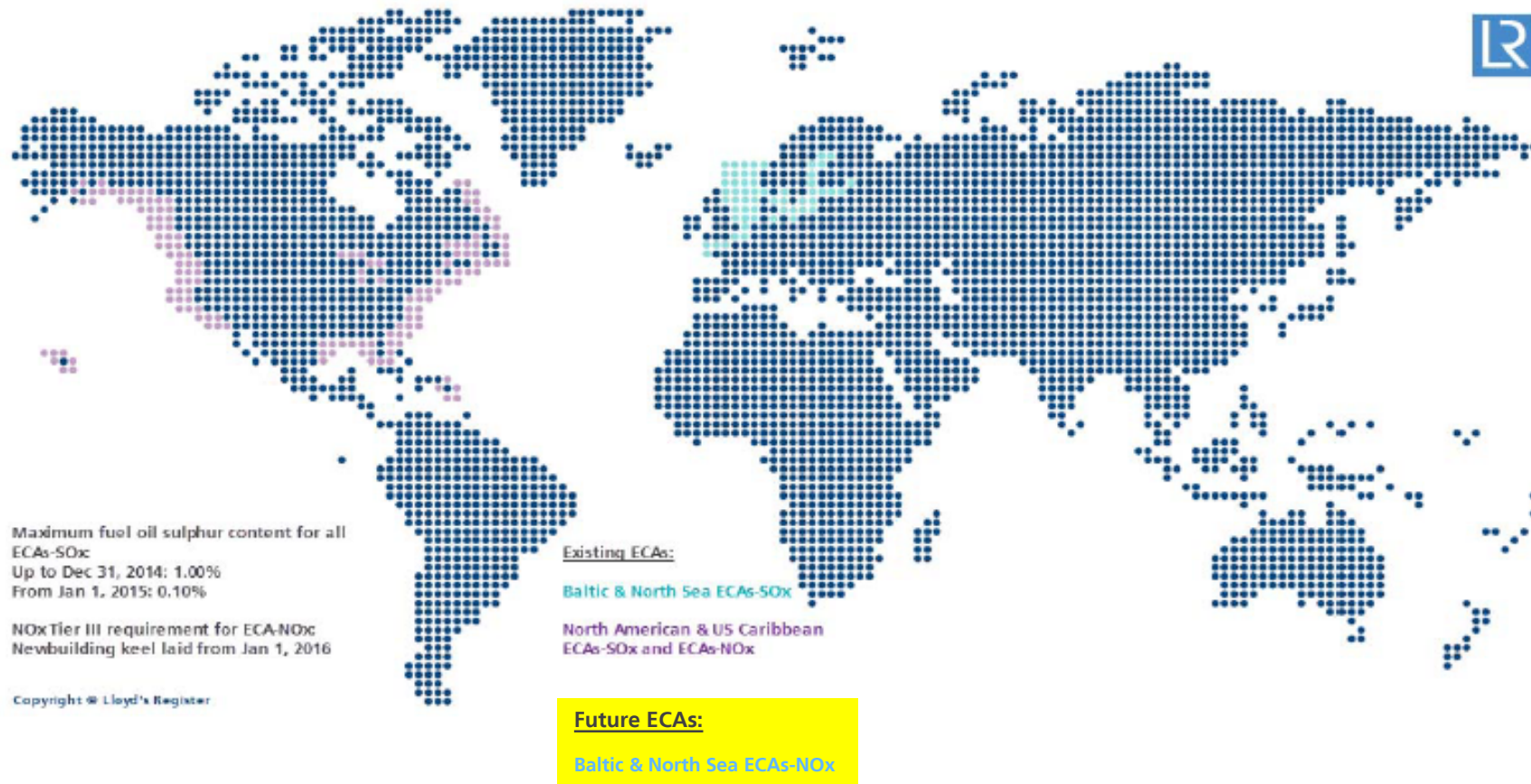
As of 1st January 2021 – Baltic Sea and North Sea ECA-NOx, including the English Channel

This means:

Stricter requirements for ships constructed on or after that date if they are to visit this area (engines have to meet the NOx Tier III requirements)



Future Emission Control Areas (ECAs)



Recent developments – GHG emissions

IMO

Roadmap approved for developing a “Comprehensive IMO strategy on reduction of GHG emissions from ships” - Initial GHG strategy to be adopted in 2018.

As a first stage:

Mandatory Fuel Oil Consumption Data Collection System (entry into force 1 Mar 2018)
(ships of 5,000 GT and above, international voyages)

- Ships report annual fuel consumption & transport proxies (starting from 1st Jan 2019)
- Verification of data
- Transfer of data to the IMO Database and annual report by the IMO

Aiming to answer: Are more energy efficiency measures needed??



Recent developments – GHG emissions

EU

EU Regulation 2015/757 on Monitoring, Reporting and Verification (MRV) of CO₂ emissions from ships (entered into force 1 Jul 2015)

(ships of 5,000 GT and above, calling at EU ports)

Similar concept to the IMO Data Collection System – more detailed

Data is verified and reported to the European Commission



Current developments

In progress:

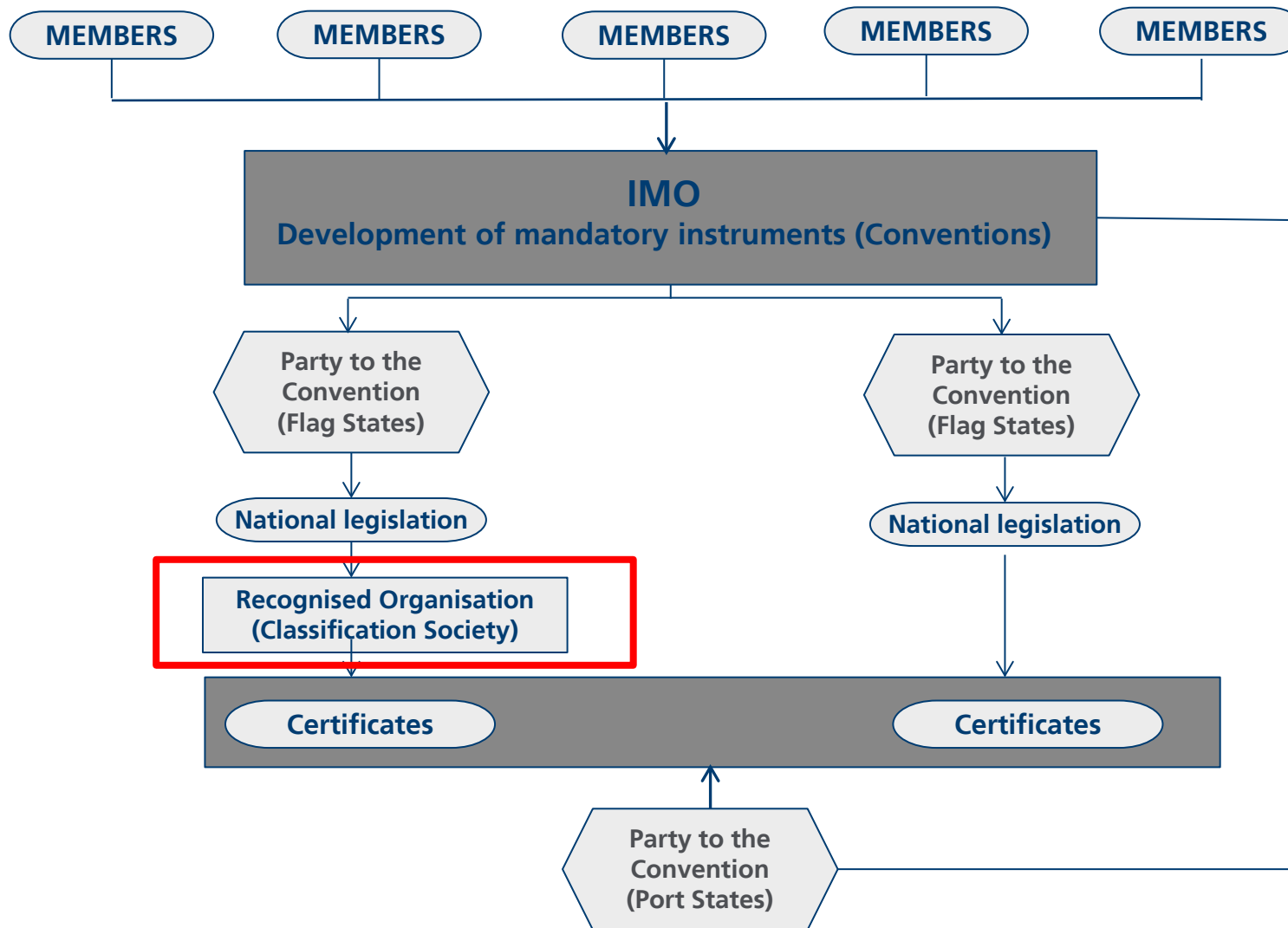
- Black Carbon emissions – voluntary measurement
- Alternative maritime power (cold ironing) – safety standards
- Maturity review of technological developments – feasibility for further energy efficiency design requirements? (EEDI reduction of new ships)

Also, to consider:

- EGCSs (scrubbers) residues – reception facilities?
- Up-to-date training of seafarers



Where do Classification Societies fit in the process



Lloyd's Register and Annex VI

Survey and Certification on behalf of governments (over 150 governments)

- Checks on board during surveys (SOx/ODS records, function of VOCs system)
- Plan approval (VOCs control plan)
- Type approval (shipboard incinerator)
- Testing and certifying new engines (NOx)
- EEDI certification (calculation at design stage, towing tank witnessing, sea trial witnessing)



Lloyd's Register and Annex VI

- Supplementary “Class” requirements – engineering part/ship structure
- Helping out shipowners and builders with regulatory challenges
- Exploring new technology and participating in innovative projects



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