

MARPOL Annex VI – prevention of air pollution from ships

Edmund Hughes
Air Pollution and Climate Change
Marine Environment Division



“Clean air at sea – promoting
solutions for sustainable and
competitive shipping”

European Commission

Brussels, Belgium

1 June 2011

International Maritime Organization (IMO)

- The IMO Convention was adopted in 1948 and IMO first met in 1959
- A **specialized agency** of the UN
- 169 Member States
- Develop and maintain a comprehensive regulatory framework for shipping
- Safety, **environment**, legal matters, technical co-operation, security and the efficiency of shipping



**Safe, secure and efficient shipping
on cleaner oceans**

Why regulate shipping emissions?

- Impact on human health
- Impact on the environment
- Impact on property

MARPOL Annex VI Regulations for the Prevention of Air Pollution from Ships

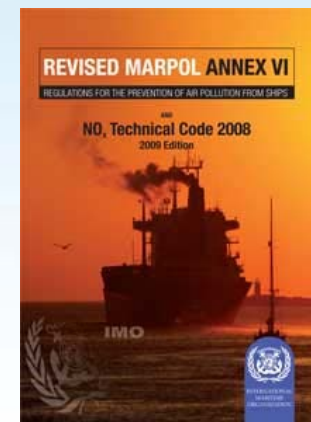


Entered into force 19 May 2005

Revisions to Annex VI

Adopted October 2008 and

entered into force **1 July 2010**



Report of fifty-seventh session of Marine Environment Protection Committee held 31 March to 4 April 2008 (MEPC 57/21):

“4.62 Slovenia, speaking as the Presidency of the European Union, following consultations with the European Commission and fellow EU Member States, wholeheartedly congratulated the IMO community – that was, all Member States, observers, the IMO Secretariat and the Secretary-General personally – for this tremendous achievement. The measures approved by the Committee would significantly and quickly reduce air pollution from ships, offering benefits for the environment and humans in the entire world. In particular, Slovenia acknowledged and greatly appreciated the co-operation and flexibility showed by all Member States and involved observers enabling IMO to reach this important decision. It clearly demonstrated that IMO was capable of taking important and difficult decisions to protect the environment.”

Report of fifty-eighth session of Marine Environment Protection Committee held 6 to 10 October 2008 (MEPC 58/23):

“The impact of sulphur limits on ferry operations in Northern Europe

5.11 The Committee considered document MEPC 58/5/11 (INTERFERRY) providing comments and information on possible impacts on ferry operations in Northern Europe under the revised MARPOL Annex VI. INTERFERRY also proposed that the overall environmental impact under the revised MARPOL Annex VI should be taken into consideration by the appropriate bodies to maintain a level playing field between different modes of transport.

5.12 A number of delegations stressed that the matters raised by INTERFERRY had been satisfactorily considered in the revision process and the negotiations leading to the delicately balanced package approved by MEPC 57 that represented a compromise that should not be reopened.

5.13 The Committee agreed to note the information provided and the views expressed by delegations, with no further action needed.”

Report of fifty-eighth session of Marine Environment Protection Committee held 6 to 10 October 2008 (MEPC 58/23):

“5.44 After the adoption of the revised MARPOL Annex VI and the NOX Technical Code 2008, the delegation of Germany wholeheartedly thanked and congratulated the Committee, IMO and all its Members for this historical decision, which was a major step forward in the protection of the environment, as well as in enhancing the operational conditions for shipping and, at the same time, the public view of the shipping sector. In its view, the unanimous adoption was a striking proof of what the Committee can achieve, despite the different backgrounds and the diverse positions at the beginning of the negotiations of three years ago. The delegation of Germany further went on to say that it was now time to dedicate all efforts into the implementation of the revised Annex and Code to achieve what had been intended. The delegation of Germany stated that different challenges might be faced at national or regional level when implementing the new regulations, e.g., challenges such as to prevent modal shift to less environmentally friendly means of transport in some regions. Such challenges had to be addressed at national or regional level, where necessary. However, in the view of Germany, challenges were, to some extent, inherent in ambitious goals.”

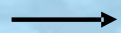
Ratification of Annex VI

- Number of Contracting States: 65
- The combined merchant fleets of which constitute approximately 89.82% of the gross tonnage of the world's merchant fleet
- 23 EU Member States + Norway & Croatia
- Non-EU Parties include: Bahamas, Panama, Liberia, China, Republic of Korea, Marshall Islands, Japan, Singapore, US, Russian Federation

ref: Status of Multilateral Conventions, IMO, 3 May 2011

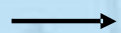
Annex VI - Application Summary

Application



All Ships

Does not apply



- When suffering damage to ship or equipment
- When saving life at sea
- When securing safety of ship

Surveys and Certification

- All ships of • 400 gross tonnage
- Fixed or floating platforms (drilling rigs)
- Floating craft and submersibles

- For non-Parties: ships constructed before date of entry into force of Annex VI to comply by 1st scheduled drydock but no later than 3 years after entry into force

International Air Pollution Prevention (IAPP) Certificate

Subject to Initial, Annual, Intermediate, and Renewal surveys

MARPOL Annex VI – Regulations

Ozone depleting substances (ODS) Reg.12

Nitrogen oxides (NO_x) Reg.13

Sulphur oxides and Particulate Matter (SO_x) Reg.14

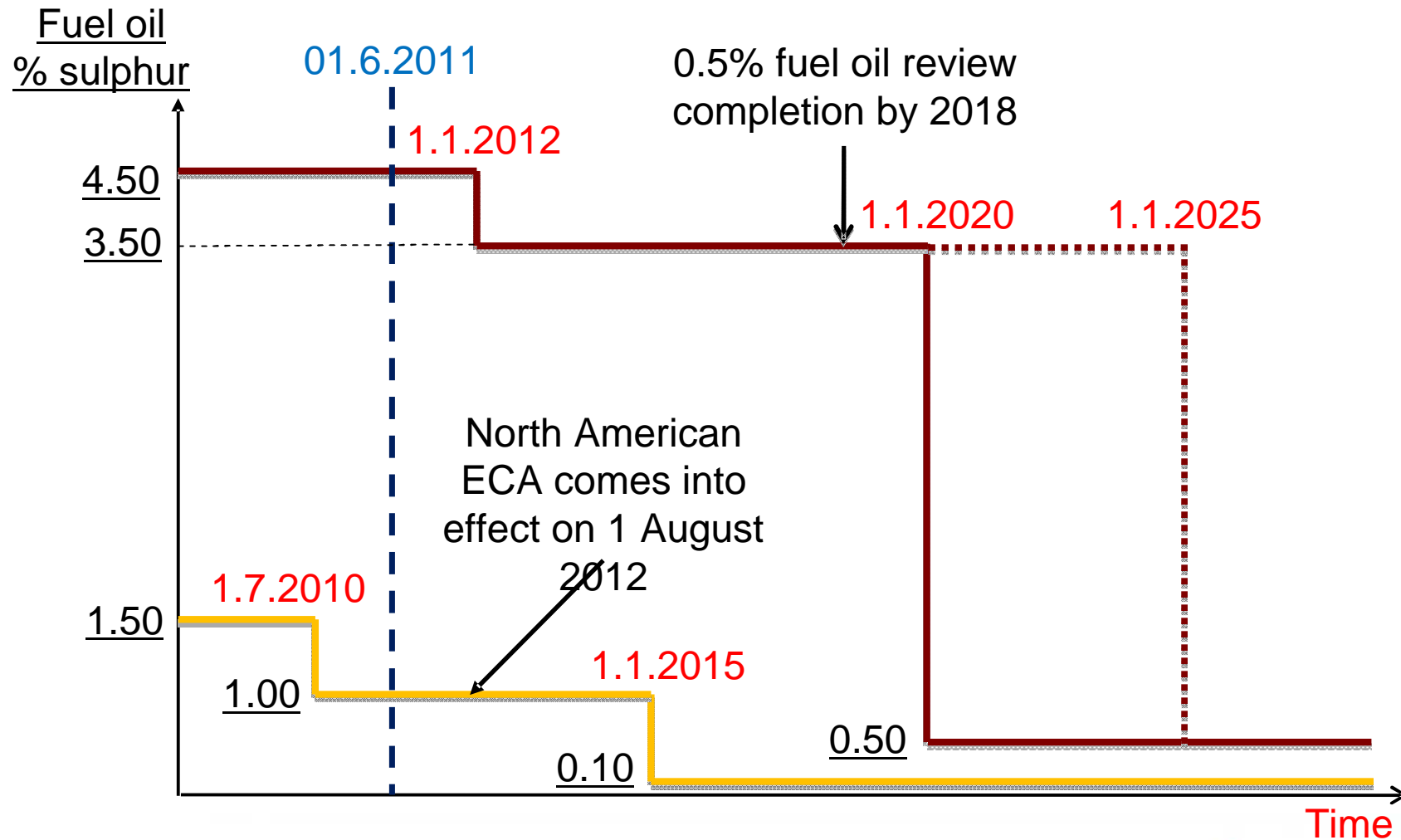
Volatile organic compounds (VOC) Reg.15

Shipboard incineration Reg.16

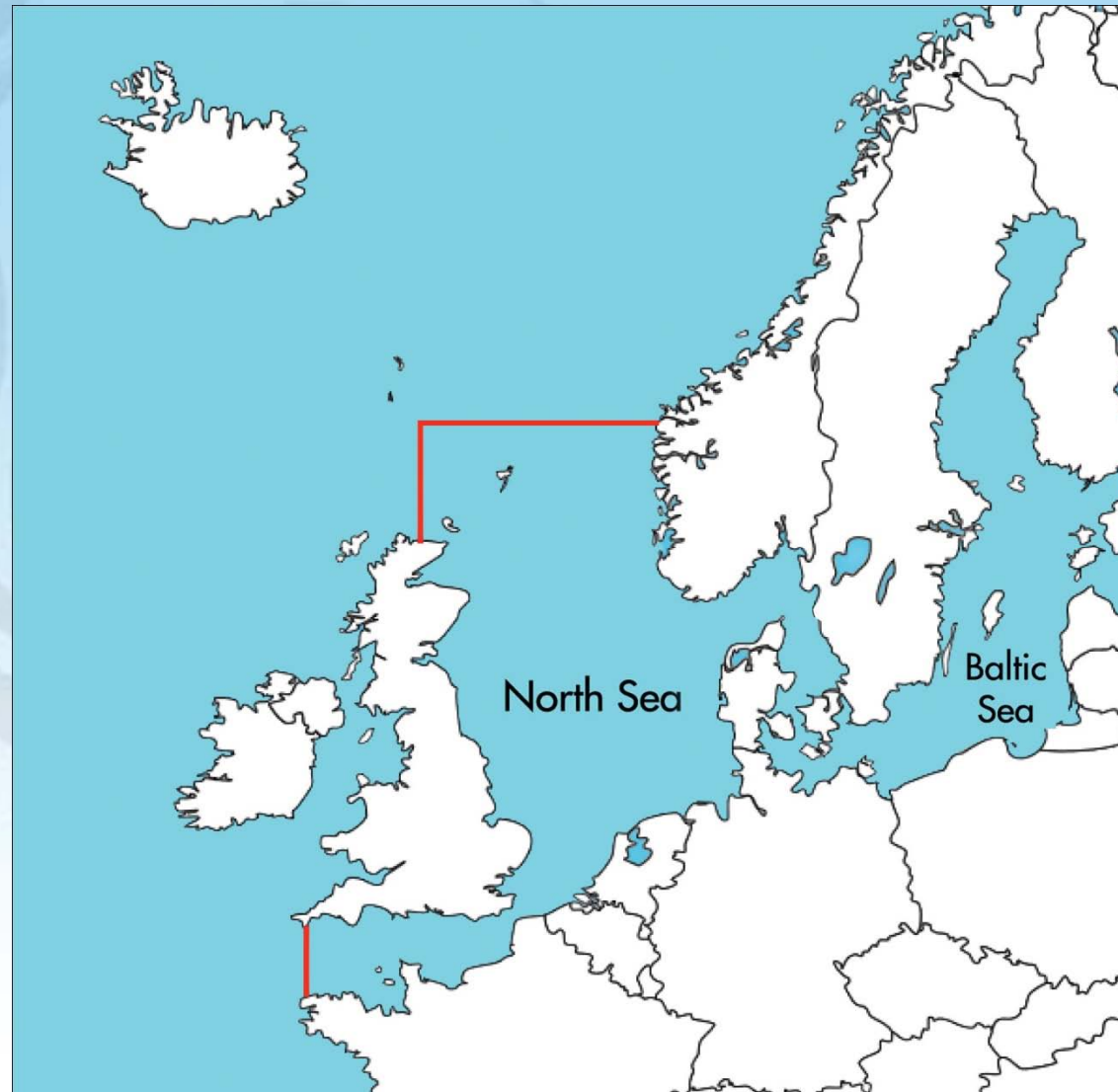
Reception Facilities Reg.17

Fuel oil quality and availability Reg.18

Regulation 14 Sulphur oxides and particulate matter (SOx & PM)



Sulphur Emission Control Areas



Options for Compliance

- Compliant fuel oil
- Equivalent compliance methods (regulation 4)
 - “fitting, material, appliance or apparatus to be fitted in a ship or other procedures, alternative fuel oils, or compliance methods”
 - Exhaust gas cleaning systems (open/closed loop)
- Onshore power supply (“cold ironing”)
 - IEC/ISO/IEEE standard expected to be published later this year refers to High Voltage Shore Connection System (HVSC)
- Bio-fuels
 - operating challenges: fuel system compatibility, long term storage, biological contamination
- LNG
 - operating challenges: on board storage, supply, crew qualifications
 - dual fuel engines

Exhaust Gas Cleaning Systems

- An alternative to low SO_x fuel
- Party to approve (reg.4.1)
- Guidelines MEPC.184(59)
- Compliance:
ratio SO₂(ppm) to CO₂(% v/v)
- Space, initial cost, availability
- Operation, maintenance, consumables, disposal of residues, crew training
- Class/Port Authorities inspection



Fuel oil availability

- Party to consider reasons for non-availability of compliant fuel oil (regulation 18.2.1)
- Future 0.5% S supply - review by 2018 (CG) (regulation 14.8)
- MGO flashpoint - 60°C reduce to 55°C?
- Demand for 0.1% S supply in ECAs*
 - Current supply 15 million tonnes of MGO
 - 2015 demand estimated to rise to 45-60 million tonnes MGO

*Maersk, Dec 2010

Thank you for your attention

**For more information please
see: www.imo.org**