

Maritime Knowledge Centre

INFORMATION RESOURCES ON Air Pollution and Greenhouse Gas (GHG) Emissions from International Shipping (Marpol Annex VI (SO_x, NO_x, ODS, VOC) / Greenhouse Gas (CO₂) and Climate Change) (Last update: 9 August 2013)

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IMO MATERIAL ON THE WEBSITE

[SeaLibrary Online](#). Search the online Maritime Knowledge Centre Catalogue.

[Air Pollution and Greenhouse gas emissions](#).

[Prevention of air pollution from ships](#)

[Ozone Depleting Substances \(ODS\) – Regulation 12](#)

[Nitrogen Oxides \(NOx\) – Regulation 13](#)

[Sulphur Oxides \(SOx\) – Regulation 14](#)

[Volatile Organic Compounds \(VOC\) – Regulation 15](#)

[Shipboard incineration – Regulation 16](#)

[Fuel oil availability and quality – Regulation 18](#)

[Greenhouse Gas Emissions](#)

[IMO's work on greenhouse gas emissions from international shipping](#)

[IMO Circular on GHG Issues](#)

[Second IMO GHG Study 2009](#). Full report

[Second IMO GHG Study 2009](#) – Presented to MEPC 59, July 13, 2009. (MARINTEK/SINTEF)

[Greenhouse gases top agenda at IMO's Marine Environment Protection Committee](#) – Video

[World Maritime Day 2009 : text of the Secretary's message](#)

[World Maritime Day background paper 2009 : Statement on the year's theme ; Climate Change – a Challenge for IMO Too!](#)

[Market-Based Measures](#)

[Vivid Economics Report: Assessment of the economic impact of market-based measures. August 2010](#)

[Further Progress Made by MEPC 61 \(September/October 2010\) on Technical, Operational and Market-Based Measures](#)

[Work undertaken by MBM-EG](#)

[Breakthrough at IMO. Adoption of the first ever global and legally binding CO2 standard for an industry sector.](#)

[Seminar on CSR activities for the shipping industry](#). Speech by Koji Sekimizu, Secretary-General, IMO, 6 April 2012.

IMO AT COP 15

[IMO – Danish Maritime Authority reception at COP 15](#). Address by Ethimios E. Mitropoulos, Secretary-General, at COP 15 8 December 2009.

[COP 15 address by Ethimios E. Mitropoulos, Secretary-General at COP 15 9 December 2009](#)

IMO AT COP 16

[IMO at COP 16.](#)

[IMO submission to COP 16 Mexico.](#) Agenda item 6. (a) - Emissions from fuel used for international aviation and maritime transport Outcome of the sixty-first session of IMO's Marine Environment Protection Committee Further progress made on technical, operational and market-based measures

[Information on work on carbon capture and storage in sub-seabed geological formation and ocean fertilization under the London Convention and London Protocol.](#) Agenda item 11 – Other matters.

[Greenhouse gas emissions from ships engaged in international trade.](#) Note by the International Maritime Organization to the 13th session of the Ad-hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA 13).

[Control of Greenhouse gas emissions from ships engaged in international trade.](#) Position note by the International Maritime Organization.

[IMO activities on control of GHG emissions from ships.](#) Presentation by Eivind S. Vagslid.

IMO AT RIO+20

[IMO at Rio+20](#)

IMO NEWS MAGAZINE

[Click here](#) for a list of articles in the IMO News Magazines on this subject up to the end of 2007.

[IMO's response to current environmental challenges.](#) *IMO News Magazine, Issue 2/2007, p5.*

[IMO's response to current environmental challenges.](#) *IMO News Magazine, Issue 2/2007, pp 14-27*

[BLG progresses work on reducing air pollution from ships.](#) *IMO News Magazine, Issue 2/2007, p35-36.*

[World Meteorological Organization chief addresses IMO environment meeting.](#) *IMO News Magazine, Issue 3/2007, p 98.*

[Marine Environment Protection Committee progresses key issues.](#) *IMO News Magazine, Issue 3/2007, p 20-24*

[Technical proposals agreed for reduction of air pollution from ships.](#) *IMO News Magazine, Issue 1/2008, p. 6*

[Air pollution.](#) *IMO News Magazine, Issue 1/2008, Special Report IMO 60, p. IX.*

[Draft amendments to MARPOL Annex VI and the NOx Technical Code agreed.](#) *IMO News Magazine, Issue 1/2008, p. 24*

[IMO vital role in reducing GHG emissions from ships.](#) *IMO News Magazine, Issue 2/2008, p. 4*

[IMO environment meeting approves revised regulations on ship emissions.](#) *IMO News Magazine, Issue 2/2008, p. 7*

[Oslo meeting prepares ground on GHG reduction mechanisms.](#) *IMO News Magazine, Issue 3/2008, pp 7-8*

[IMO environmental meeting adopts revised regulations on ship emissions.](#) *IMO News Magazine, Issue 4/2008, p. 6.*

[Climate change: A challenge for IMO too!](#) *IMO News Magazine, Issue 3, 2009, pp 4-5 & pp 21- 28.*

[MEPC measures address GHG emissions.](#) *IMO News Magazine, Issue 3, 2009, p. 6*

[World Maritime Day 2009 – Climate change – A challenge for IMO too!](#) *IMO News Magazine, Issue 4, 2009, pp 19-24*

[More work needed despite GHG progress, MEPC concludes.](#) *IMO News Magazine, Issue 2, 2010, pp 18-19*

[Marpol amendments cur air pollution from ships.](#) *IMO News Magazine, Issue 3, 2010, p. 11*

[GHG progress continues on all fronts.](#) *IMO News Magazine, Issue 4, 2010, p. 4*

[Environment meeting progresses GHG reduction measures for ships.](#) *IMO News Magazine, Issue 4, 2010, p.6*

[Proposed GHG amendments to MARPOL convention circulated.](#) *IMO News Magazine, Issue 1, 2011, p.7*

[Cancún acknowledges IMO efforts on climate change.](#) *IMO News Magazine, Issue 1, 2011, p. 8.*

[Annex VI fuel targets can be met says EC Environment Commissioner.](#) *IMO News Magazine, Issue 1, 2011, p. 9*

[Steady progress on MBMs during intersessional IMO meetings.](#) *IMO News Magazine, Issue 2, 2011, p. 8*

[EEDI – rational, safe and effective.](#) *IMO News Magazine, Issue 2, 2011, pp 12-13*

[North America ECA t take effect in 2012.](#) *IMO News Magazine, Issue 4, 2011, p.9*

[Durban conference acknowledges IMO's climate change progress.](#) *IMO News Magazine, Issue 1, 2012, p. 8*

[Study shows significant reduction on CO2 emissions from IMO measures.](#) *IMO News Magazine, Issue 1, 2012, p. 9*

[MEPC adopts energy-efficiency implementation guidelines.](#) *IMO News Magazine, Issue 2, 2012, pp 12-14.*

PRESS BRIEFINGS

[Click here for Briefings up to December 2007](#)

[BLG progresses work on reducing air pollution from ships.](#) Secretary-General calls for comprehensive review of proposals. *Briefing 08/2007, 26 April 2007.*

[Air pollution, ship recycling and ballast water management on MEPC agenda.](#) Marine Environment Protection Committee (MEPC) meets for its 56th session 9-13 July. *Briefing 22/2007, 6 July 2007.*

[Marine Environment Protection Committee progresses key issues.](#) Green light given to air pollution study. *Briefing 26/2007, 20 July 2007.*

[Acceleration of the IMO greenhouse gas timetable sought.](#) MEPC to be asked to advance decision-making process on greenhouse gas emissions. *Briefing 39/2007, 16 November 2007.*

[North Sea SECA in effect from 22 November 2007.](#) Ships operating in the North Sea must demonstrate compliance with stringent new exhaust emission standards from tomorrow 22 November 2007. *Briefing 44/2007, 21 November 2007.*

[BLG Sub-Committee agrees technical proposals for reduction of air pollution from ships.](#) Agreements pave the way for political decisions at MEPC. *Briefing 02/2008, 12 February 2008.*

[IMO environment meeting to consider revised regulations on ship emissions.](#) Marine Environment Protection Committee (MEPC) to meet 31 March to 4 April 2008. *Briefing 11/2008, 28 March 2008.*

[IMO environment meeting approves revised regulations on ship emissions.](#) Mitropoulos hails consensus approach as reduced emissions draw closer. *Briefing 12/2008. 4 April 2008.*

[IMO confirms environmental credentials as MEPC makes major progress.](#) Ship recycling, ballast water management and protection of special areas join air pollution on list of MEPC successes. *Briefing 13/2008, 9 April 2008.*

[Oslo meeting to prepare ground on GHG reduction mechanisms.](#) The First Intersessional Meeting of IMO's Working Group on Greenhouse Gas Emissions from ships will be held next week in Oslo, Norway (23 to 27 June, 2008). *Briefing 27/2008, 15 June 2008.*

[IMO to focus on climate change in 2009](#). World Maritime Day theme for 2009 will be “Climate Change ; a challenge for IMO too!”. *Briefing 32/2008, 24 June 2008.*

[Oslo meeting prepares ground on GHG reduction mechanisms](#). First intersessional meeting of IMO’s Working Group on Greenhouse Gas Emissions from Ships. *Briefing 34/2008, 1 July 2008.*

[Ship emissions high on agenda at IMO environment meeting](#). Preview: Marine Environment Protection Committee (MEPC) - 58th session: 6 to 10 October 2008. *Briefing 43/2008, 3 October 2008.*

[IMO environment meeting adopts revised regulations on ship emissions](#). Marine Environment Protection Committee (MEPC) – 58th session: 6 to 10 October 2008. *Briefing 46/2008, 10 October 2008.*

[Major progress on air pollution, ship recycling and ballast water management at IMO environment meeting](#). Marine Environment Protection Committee (MEPC) – 58th session: 6 to 10 October 2008. *Briefing 48/2008, 13 October 2008.*

[Intersessional Working Group meeting to further develop GHG reduction mechanism](#). Second Intersessional Meeting of IMO’s Working Group on Greenhouse Gas Emissions (GHG) from Ships meets 9 - 13 March. *Briefing 08/2009, 6 March 2009.*

[Major progress on energy efficiency for ships during intersessional IMO meeting](#). Second intersessional meeting of IMO’s Working Group on Greenhouse Gas Emissions (GHG) makes progress on indexes. *Briefing 10/2009, 16 March 2009*

[Revised MARPOL Annex VI and NOx Technical Code published by IMO](#). *Briefing 12/2009, 31 March 2009*

[Climate change on the agenda as UN agency leaders meet at IMO](#). Leaders of three United Nations agencies involved in the UN Climate Change Conference (COP 15) hold preparatory meeting at IMO. *Briefing 19/2009, 8 May 2009.*

[IMO environment meeting issues technical and operational measures to address GHG emissions from ships](#). MEPC agrees to circulate, via MEPC Circulars, interim and voluntary technical and operational measures to reduce GHG from international shipping. *Briefing 27/2009, 17 July 2009.*

[MARPOL amendments to prevent pollution during ship-to-ship oil transfer operations adopted](#). MEPC 59 adopts MARPOL amendments. *Briefing 28/2009, 22 July 2009.*

[Preview: Marine Environment Protection Committee \(MEPC\) – 60th Session: 22-26 March, 2010](#). GHG emissions high on agenda at IMO environment meeting. *Briefing 09/2010, 17 March 2010.*

[IMO Secretary-General Mitropoulos meets EC Commissioner Hedegaard](#). Mrs. Connie Hedegaard, European Commissioner for Climate Action, visited the Organization’s Headquarters on Tuesday, 11 May. *Briefing 22/2010. 11 May 2010.*

[Air pollution from ships cut, with entry into force of MARPOL amendments](#). New and more stringent regulations to reduce harmful emissions from ships enter into force on 1 July 2010 *Briefing 36/2010, 1 July 2010.*

[CO2 control measures high on agenda at IMO environment meeting](#). Marine Environment Protection Committee (MEPC) meets for its 61st session from 27 September to 1 October, 2010 at the IMO Headquarters in London.. *Briefing 47/2010, 23 September 2010.*

[IMO environment meeting discusses GHG measures for new ships](#). MEPC made further progress in developing measures the draft text to improve the energy efficiency of ships. *Briefing 48/2010, 4 October 2010*

[Proposed GHG amendments to MARPOL convention circulated for adoption in 2011, as IMO heads to Cancún climate change conference](#). *Briefing 55/2010, 25 November 2010.*

[Cancún Climate Change Conference](#). *Briefing 57/2010, 13 December 2010*

[Steady progress on MBMs for international shipping during intersessional IMO meeting](#). Third intersessional meeting of IMO’s Working Group on Greenhouse Gas Emissions (GHG) from Ships met from 28 March to 1 April 2011 to discuss suitable market-based measures (MBMs) for international shipping. *Briefing 18, 5 April 2011.*

[Republic of Korea to assist IMO in Building Capacity in Developing Countries to Address Greenhouse Gas Emissions from Ships](#). IMO and the Korea International Cooperation Agency (KOICA) today (21 April 2011) signed a Cooperation Agreement at the Organization's London Headquarters . *Briefing 25/2001, 21 April 2011.*

[CO2 control measures for international shipping to be considered at IMO environment meeting](#). Mandatory measures to reduce emissions of greenhouse gases from international shipping will be considered for adoption by Marine Environment Protection Committee (MEPC), 62nd session, 11-15 July , 2011. *Briefing 40/2011, 7 July 2011.*

[Mandatory energy efficiency measures for international shipping adopted at IMO environment meeting](#). Mandatory measures adopted by Parties to MARPOL Annex VI represented in the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO), when it met for its 62nd session from 11 to 15 July 2011 at IMO Headquarters in London, representing the first ever mandatory global greenhouse gas reduction regime for an international industry sector. *Briefing 42/2011, 15 July 2011*

[IMO environment meeting completes packed agenda](#). Marine Environment Protection Committee (MEPC) – 62nd session: 11 to 15 July 2011 . *Briefing 43/2011, 19 July 2011*

[Antarctic fuel oil ban and North American ECA MARPOL amendments enter into force on 1 August 2011](#). MARPOL amendments enter into force on 1 August 2011, banning heavy fuel oil from Antarctic and creating North American ECA. *Briefing 44/2011, 29 July 2011.*

[Study shows significant reduction in CO2 emissions from ships from IMO measures](#). An IMO-commissioned study into the impact of mandatory energy efficiency measures for international shipping shows that implementation of the measures will lead to significant reductions of greenhouse gas (GHG) emissions from ships, specifically reductions of carbon dioxide (CO2), resulting from enhanced fuel efficiency. *Briefing 57/2011, 14 November 2011*

[Durban Climate Change Conference](#). United Nations Climate Change Conference concluded its seventeenth session (COP 17/CMP 7) in Durban, South Africa, noting IMO's adoption of regulations on energy efficiency for ships. *Briefing 63/2011, 12 December 2011*

[Preview: Marine Environment Protection Committee \(MEPC\), 63rd session, 27 February to 2 March 2012. Market-based measures for greenhouse gases from ships on agenda as IMO Marine Environment Protection Committee meets](#). *Briefing 07/2012, 22 February 2012.*

[IMO adopts important guidelines to support implementation of mandatory energy efficiency measures for international shipping](#). *Briefing 09/2012, 5 March 2012.*

[“Sustainable Development: IMO's contribution beyond Rio+20” selected as World Maritime Day theme for 2013](#). The IMO Council has endorsed a proposal by IMO Secretary-General Koji Sekimizu to adopt “Sustainable Development: IMO's contribution beyond Rio+20” as the World Maritime Day theme for 2013. *Briefing 23/2012, 18 June 2012.*

[North American emission control area comes into force on 1 August 2012](#). *Briefing 28/2012, 31 July 2012.*

[Implementation of energy-efficiency, ballast water management and ship-recycling rules on busy agenda for IMO Marine Environment Protection Committee](#). *Briefing 39/2012, 27 September 2012*

[Work begins on updating inventory of GHG from international shipping](#). *Briefing 06/2013, 25 February 2013.*

[Work on updating greenhouse gas emissions estimate for international shipping moves forward at Expert Workshop](#). *Briefing 07/2013, 5 March 2013.*

IMO PODCASTS

Durban Conference 2011. With COP 17 now underway IMO discusses the impact of its work to reduce GHG emissions from international shipping. November/December 2011 .

IMO DOCUMENTS

[Click here](#) for documents prior to 2009

NOTE: Except for current meetings' documents and working papers, all IMO Documents issued since 1998 are available in the [IMODOCS](#) database in English, French and Spanish; some documents are also available in Arabic, Chinese and Russian. Documents prior to 1998 can be obtained on an ad hoc basis provided that they exist in electronic form.

Abbreviations: Association of European Manufacturers of Internal Combustion Engines (**EUROMOT**); Clean Shipping Coalition (**CSC**); Community of European Shipyards' Associations (**CESA**); Cruise Lines International Association (**CLIA**); European Commission (**EC**); International Association of Classification Societies (**IACS**); International Association of Drilling Contractors (**IADC**); Institute of Marine engineering Science and Technology (**IMarEst**); International Association of Independent Tanker Owners (**INTERTANKO**); International Association of Ports and Harbours (**IAPH**); International Bunker Industry Association (**IBIA**); International Council of Cruise Lines (**ICCL**); International Chamber of Shipping (**ICS**); International Council of Marine Industry Associations (**ICOMIA**); Baltic and International Maritime Council (**BIMCO**); International Association of Dry Cargo Shipowners (**INTERCARGO**); International Paint and Printing Ink Council (**IPPIC**); International Parcel Tankers Association (**IPTA**); International Petroleum Industry Environmental Conservation Association (**APIECA**); International Organization for Standardization (**ISO**); International Towing Tank Conference (**ITTC**); International Transport Workers Federation (**ITF**); Oil Companies International Marine Forum (**OCIMF**); Friends of the Earth International (**FOEI**); Society of International Gas Tankers and Terminal Operators (**SIGTTO**); Superyacht Builders Association (**SYBAss**); World Shipping Council (**WSC**)

PS. Working Papers are not listed below

RESOLUTIONS

[Click here](#) for resolutions

A 22/Res.929	Entry into force of Annex VI of MARPOL 73/78 : Resolution adopted on 29 November 2001
A 23/Res.963	IMO policies and practices related to the reduction of greenhouse gas emissions from ships Resolution adopted on 5 December 2003
MEPC.76(40)	Standard specification for shipboard incinerators. Resolution adopted on 25 September 1997
MEPC.82(43)	Guidelines for monitoring the world-wide average sulphur content of residual fuel oils supplied for use on board ships. Resolution adopted on 1 July 1999
MEPC.96(47)	Guidelines for the sampling of fuel oil for determination of compliance with Annex VI of MARPOL 73/78 . Resolution adopted on 8 March 2002
MEPC.132(53)	Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. (Amendments to MARPOL Annex VI and the NOx Technical Code). Adopted on 22 July 2005.
MEPC.176(58)	Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (Revised Marpol Annex VI)
MEPC.177(58)	Amendments to the Technical Code on Control of Emission of Nitrogen Oxides from marine Diesel Engines (NOx Technical Code 2008)
MEPC.198(62)	2011 guidelines addressing additional aspects to the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reduction (SCR) systems)
MEPC.199(62)	2011 guidelines for reception facilities under Marpol Annex VI
MEPC.202(62)	Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (designation of the United States Caribbean Sea Emission Control Area and exemption of certain ships operating in the North American Emission Control Area and the United States Caribbean Sea Emission Control Area under regulation 13 and 11 and appendix VII of Marpol Annex VI)

MEPC.203(62) Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (inclusion of regulations on energy efficiency for ships in Marpol Annex VI)

CIRCULARS

Circular Letters

Circular Letter No. 2805 26/07/2007	Second Intersessional Meeting of the BLG Working Group on Air Pollution
Circular Letter No. 2861 07/04/2008	Amendments to Marpol Annex VI – Amendments to the NOx Technical Code.
Circular Letter No. 2866 11/04/2008	First Intersessional Meeting of the Working Group on GHG Emissions from Ships
Circular Letter No. 3049 31/03/2010	First Intersessional Meeting of the Working Group on Energy Efficiency Measures for Ships
Circular Letter No. 3128 24/11/2010	Amendments to Marpol Annex VI (Annex – Draft regulations for the prevention of air pollution from ships with new chapter 4 on regulations on energy efficiency for ships)
Circular Letter No. 3170 01/03/2011	Communication regarding Circular letter No. 3128 on proposed amendments to Marpol Annex VI
Circular Letter No. 3318 31/10/2012	Invitation to the Expert Workshop on the update of GHG emissions estimate for international shipping (update-EW) (Tuesday, 26 February 2013 to Friday, 1 March 2013)

MEPC

[Click here](#) for *MEPC Circulars*

MEPC/Circ.458 22/06/2005	Implementation of MARPOL Annex VI. Communication received from the Administration of the United States
MEPC/Circ.471 29/07/2005	Interim guidelines for voluntary ship CO2 emission indexing for use in trials
MEPC/Circ.472 29/07/2005	Guidelines for port state control under MARPOL Annex VI
MEPC/Circ.473 29/07/2006	Approved unified interpretations to MARPOL Annex VI and the NOx Technical Code
MEPC.1/Circ.508 09/05/2006	Bunker delivery note and fuel oil sampling
MEPC.1/Circ.509 09/05/2006	Notification to the Organization on ports or terminals where volatile organic compounds (VOCs) emissions are to be regulated
MEPC.1/Circ. 540 24/11/2006	Approved unified interpretations to MARPOL Annex VI and the NOx Technical Code
MEPC.1/Circ.551 04/12/2006	Implementation and enforcement of MARPOL Annex VI. Communication received from the administration of Panama
MEPC.1/Circ.589 17/03/2008	Greenhouse gas module in the Global Integrated Shipping Information System

MEPC.1/Circ.598 22/01/2008	Implementation and enforcement of MARPOL Annex VI. Communication received from the administration of the United Kingdom
MEPC.1/Circ.614 15/04/2008	Unified interpretations to Marpol Annex VI : Sulphur limits in fuel and fuel oil ventilation procedure for Marpol Annex VI
MEPC.1/Circ.614/Corr.1 05/01/2009	Unified interpretations to Marpol Annex VI : Sulphur limits in fuel and fuel oil ventilation procedure for Marpol Annex VI
MEPC.1/Circ.623 10/07/2008	Implementation and enforcement of MARPOL Annex VI. Bunker delivery note and fuel oil sampling. Communications received from the Administration of the United Kingdom
MEPC.1/Circ.638 17/11/2008	Interim guidelines for the application of the NOx Technical Code 2008
MEPC.1/Circ.681 17/08/2009	Interim guidelines on the method of calculation of the energy efficiency design index for new ships
MEPC.1/Circ.682 17/08/2009	Interim guidelines for voluntary verification of the energy efficiency design index
MEPC.1/Circ.683 17/08/2009	Guidance for the development of a Ship Energy Efficiency Management Plan (SEEMP)
MEPC.1/Circ.684 17/08/2009	Guidelines for voluntary use of voluntary use of the Ship Energy Efficiency Operational Indicator (EEOI)
MEPC.1/Circ.704 22/12/2009	Implementation and enforcement of MARPOL Annex VI. Bunker delivery note and fuel oil sampling. Communications received from the Administration of Liberia and Norway
MEPC.1/Circ.730 06/07/2010	Implementation and enforcement of MARPOL Annex VI. Bunker delivery note and fuel oil sampling. Communications received from the Administrations of Cyprus, Liberia and Hong Kong, China
MEPC.1/Circ.741 13/01/2011	Implementation and enforcement of MARPOL Annex VI. Bunker delivery note and fuel oil sampling. Communications received from the Administrations of Liberia, Norway, the United Kingdom and Hong Kong, China
MEPC.1/Circ.743 17/02/2011	Information on an approved method under Marpol Annex VI. Communication received from the Administration of Germany
MEPC.1/Circ.755 02/11/2011	Information on the United States Caribbean Sea emission control area under MARPOL Annex VI.
MEPC.1/Circ.758 27/07/2011	Implementation and enforcement of MARPOL Annex VI. Bunker delivery note and fuel oil sampling. Communication received from the Administration of Cyprus and Liberia
MEPC.1/Circ.764 12/08/2011	Information on an approved method under Marpol Annex VI. Communication received from the Administration of Denmark
MEPC.1/Circ.764/Add.1 15/09/2011	Information on an approved method under Marpol Annex VI. Communication received from the Administration of Denmark
MEPC.1/Circ.768 14/09/2011	Application of regulation 4 of Marpol Annex VI. Communication received from the Administration of Denmark
MEPC.1/Circ.770 10/10/2011	Information on an approved method under Marpol Annex VI. Communication received from the Administration of Denmark
MEPC.1/Circ.777 20/01/2012	Implementation and enforcement of Marpol Annex VI. Bunker delivery note and fuel oil sampling. Communication received from the Administration of Liberia
MEPC.1/Circ.785	Implementation and enforcement of Marpol Annex VI. Bunker delivery note and fuel oil sampling. Communications received from the Administrations of Cyprus, Liberia, Norway and Hong Kong, China

SUB-COMMITTEE ON BULK LIQUIDS AND GASES

[Click here](#) for documents prior to 2009

13th Session (2 -6 March 2009)

BLG 13/13	Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code. Outcome of MEPC 58
BLG 13/13/1	Idem. Draft guidelines for certification of engines fitted with selective catalyst reduction (SCR) systems. Submitted by Japan
BLG 13/13/2	Idem. Guidelines for the development of a VOC management plan. Submitted by INTERTANKO and OCIMF
BLG 13/13/3	Idem. Model VOC management plan for crude oil tankers. Submitted by Norway and INTERTANKO
BLG 13/13/1/Corr.1	Idem. Corrigendum
BLG 13/13/4	Idem. Items to be included in the guidelines for the approved method. Submitted by Japan
BLG 13/13/5	Idem. Proposed interpretation of paragraph 2.2.5.2 in conjunction with paragraph 2.2.5.6 of the NOx Technical Code 2008. Submitted by EUROMOT
BLG 13/13/6	Idem. Guidelines for certification of tier III engines using exhaust gas after-treatment systems. Submitted by the United States
BLG 13/13/7	Idem. Comments on certification procedures and documentation for approved methods. Submitted by Denmark
BLG 13/13/8	Idem. Example approved method documentation for certification. Submitted by Denmark
BLG 13/13/9	Idem. Comment on draft guidelines for certification of tier III engines using selective catalytic reduction (SCR). Submitted by the United States
BLG 13/18	Report. (Section 13 - Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code; Annex 13 – Draft amendments to the survey guidelines under the harmonized system of survey and certification for the revised Marpol Annex VI; Annex 14 – Draft MEPC resolution on the revised guidelines for port state control under the revised Marpol Annex VI; Annex 15 – Draft framework for possible guidance on reception facilities in connection with the revised Marpol Annex VI; Annex 16 – Draft guidelines for the development of a VOC management plan; Annex 17 – Draft MEPC Circular on the guidelines for the application of the NOx Technical Code relative to certification and amendments of tier I engines; Annex 18 – Draft MEPC Circular on the definitions for the cost effectiveness formula in regulation 13.7.5 of the revised Marpol Annex VI; Annex 19 – Draft MEPC resolution on the revised guidelines for monitoring the worldwide average sulphur content of residual fuel oils supplied for use on board ships; Annex 20 – Draft MEPC resolution on the guidelines for the sampling of fuel oil for determination of compliance with the revised Marpol, Annex VI)

14th Session (8 – 12 February 2010)

BLG 14/12	Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code. Report of the Working Group on the Review of Marpol Annex VI and the NOx Technical Code (Part 2). Submitted by the Chairman of the Working Group
BL:G 14/12/1	Idem. Draft guidelines for certification of marine diesel engines fitted with selective catalytic reduction (SCR) systems. Submitted by Japan

- BLG 14/12/2 Idem. Technical background on a dry/wet correction method for exhaust gas mass flow calculation of engines fitted with selective catalytic reduction. Submitted by Japan
- BLG 14/12/3 Idem. Comments on draft guidelines for certification of marine diesel engines fitted with selective catalytic reduction (SCR) systems. Submitted by the United States
- BLG 14/12/4 Idem. Proposed changes to the 2009 guidelines for monitoring the worldwide average sulphur content of residual fuel oils supplied for use on board ships under the revised Marpol Annex VI. Submitted by Norway
- BLG 14/12/5 Idem. Guidelines for certification of engines using selective catalytic reduction (SCR) exhaust gas after-treatment systems. Submitted by Euromot
- BLG 14/17 Report. (Section 12 - Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code)

15th Session (7 – 11 February 2011)

- BLG 15/11 Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code. Report of the Correspondence Group. Submitted by the United States
- BLG 15/11/1 Idem. Discussions on the revised marine fuel specification ISO 8217 factors regarding fuel characteristics and parameters. Submitted by ISO
- BLG 15/11/2 Idem. Guidelines for certification of engines using SCR exhaust gas after-treatment system. Submitted by EUROMOT
- BLG 15/11/3 Idem. Technical background to amend the NOx Technical Code 2008 concerning testing of engines fitted with a NOx-reducing device. Submitted by Japan
- BLG 15/11/4 Idem. Observations and comments relating to the revised marine fuel specification ISO 8217:2010. Submitted by Norway and INTERTANKO
- BLG 15/11/5 Idem. Discussions of the revised marine fuel specification ISO 8217 factors regarding fuel characteristics and parameters. Submitted by IBIA and BIMCO
- BLG 15/11/6 Idem. Fuel specification issues. Submitted by IPIECA
- BLG 15/19 Report. (Section 11 – Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx technical code; Annex 8 – Draft MEPC resolution on guidelines addressing additional aspects to the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reduction (SCR) systems; Annex 9 – Draft MEPC resolution on guidelines for reception facilities under Marpol Annex VI)

16th session (30 January – 3 February 2012)

- BLG 16/8 Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the NOx Technical Code. Report of the Correspondence Group. Submitted by the United States
- BLG 16/8/1 Idem. Methods to determine compliance with regulation 13 of Marpol Annex VI by engines utilizing NOx after-treatment devices. Submitted by USA
- BLG 16/8/2 Idem. Sampling fuel oil. Submitted by Norway.
- BLG 16/INF.4 Idem. Report of the Correspondence Group – Comments submitted to the Correspondence Group. Submitted by USA
- BLG 16/INF.5 Any other business. Impact of fuel quality regulation and speed reductions on shipping emissions: Implications for climate and air quality. Submitted by USA

17th Session (4 – 8 February 2013)

BLG 17/10 BLG 17/10/Corr.1	Consideration of the impact on the Arctic of emissions of black carbon from international shipping. Report of the Correspondence Group. Submitted by USA
BLG 17/10/1	Idem. Proposal for a measurement method to determine Black Carbon emissions on test beds on board ships. Submitted by EUROMOT
BLG 17/10/2	Idem. Comments on the progress in the Correspondence Group and the investigation of appropriate control measures (abatement technologies) to reduce Black Carbon emissions from international shipping. Submitted by CSC
BLG 17/10/3	Idem. Comments on the progress in the Correspondence Group and the revised estimates of black carbon emissions from global and Arctic shipping. Submitted by CSC
BLG 17/11 BLG 17/11/Corr.1	Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the Nox Technical Code. Report of the Correspondence Group. Submitted by USA
BLG 17/11/1	Idem. Proposal to amend the NOx Technical Code 2008 concerning use of dual fuel engines. Submitted by Japan and EUROMOT
BLG 17/11/2	Idem. Issued related to resolution MEPC.184(59) on 2009 guidelines for exhaust gas cleaning systems. Submitted by Denmark
BLG 17/11/3	Idem. Guidelines for equivalent methods: Regional emissions averaging. Submitted by USA
BLG 17/11/4	Idem. Equivalents under regulation 4 of Marpol Annex VI and emissions trading. Submitted by CSC
BLG 17/11/5	Idem. Proposed amendments to resolution MEPC.184(59) – 2009 Guidelines for exhaust gas cleaning systems. Submitted by Inteferry
BLG 17/14	Consideration of IACS unified interpretations. “Time of the replacement or addition” for the applicable NOx tier standard for the supplement to the IAPP Certificate. Submitted by IACS
BLG 17/INF.2	Consideration of the impact on the Arctic of emissions of Black Carbon from international shipping. Revised estimates of Black Carbon emissions from global and arctic shipping. Submitted by IMarEST
BLG 17/INF.3	Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the Nox Technical Code. Assessment of possible impacts of shipboard water discharges on the marine environment. Submitted by Denmark
BLG 17/INF.4	Idem. Report of the Correspondence Group. Comments submitted to the Correspondence Group. Submitted by USA
BLG 17/INF.5	Review of relevant non-mandatory instruments as a consequence of the amended Marpol Annex VI and the Nox Technical Code. Report of the Correspondence Group. Comments submitted to the Correspondence Group. Submitted by USA
BLG 17/INF.7	Consideration of the impact on the Arctic of emissions of Black Carbon from international shipping. Investigation of appropriate control measures (abatement technologies) to reduce Black Carbon emissions from international shipping.
BLG 17/INF.8	Consideration of improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution. Consideration of equivalent technologies for reduction of sulphur oxides (SOx). Submitted by IMarEST

INTERSESSIONAL MEETING OF THE GREENHOUSE GAS WORKING GROUP

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2nd Session (9 – 13 March 2009)

GHG-WG 2/2	Consideration of the Energy Efficiency Design Index for new ships. Proposals on the effect of generators and diesel-electric propulsion systems. Submitted by the Netherlands
GHG-WG 2/2/1	Idem. Input to further development of the Energy Efficiency design Index. Submitted by the Netherlands
GHG-WG 2/2/2	Idem. Proposals for modifications to the Energy Design Index. Submitted by RINA
GHG-WG 2/2/3	Idem. Definition of ship types. Energy efficiency design index. Submitted by Denmark
GHG-WG 2/2/4	Idem. Proposal for a verification procedure for waste heat recovery contribution. Submitted by Denmark
GHG-WG 2/2/5	Idem. Auxiliary engine power on passenger ships and supplementary diesel electric systems. Submitted by Denmark
GHG-WG 2/2/6	Idem. Capacity for or-ro passenger ships. Submitted by Denmark
GHG-WG 2/2/7	Idem. Recalculation of energy efficiency design index baselines for cargo ships. Submitted by Denmark
GHG-WG 2/2/8	Idem. Calculation of the attained Energy Efficiency Design Index. Submitted by Sweden
GHG-WG 2/2/9	Idem. Comments on the EEDI baseline formula. Submitted by China
GHG-WG 2/2/10	Idem. Comments on the draft Interim Guidelines on the method of calculation of the energy efficiency design index for new ships. Submitted by China
GHG-WG 2/2/11	Idem. Comments on the coefficient f_w in the EEDI formula. Submitted by China
GHG-WG 2/2/12	Idem. Proposal for new concept approach to EEDI for new ships. Submitted by the Republic of Korea
GHG-WG 2/2/13	Idem. Further development of index methodology as presented at MEPC 58. Submitted by Interferry
GHG-WG 2/2/14	Idem. Verification of the Energy Efficiency Design Index (EEDI). Submitted by Norway
GHG-WG 2/2/15	Idem. Progress report on the work relating to f_w coefficient in the Energy Efficiency Design Index (EEDI)
GHG-WG 2/2/16	Idem. Regulatory framework for mandatory application of the Energy Efficiency design Index (EEDI) and the verification and certification procedures for the EEDI. Submitted by Japan
GHG-WG 2/2/17	Idem. Fine-tuning of the Energy Efficiency Design Index (EEDI). Submitted by Japan
GHG-WG 2/2/18	Idem. Technical consideration of baselines for Energy Efficiency Design Index (EEDI). Submitted by Japan
GHG-WG 2/2/19	Idem. Application of EEDI to ships other than those operating with conventional machinery and power distribution arrangements. Submitted by ICS, CLIA, Interferry and the Marshall Islands
GHG-WG 2/2/20	Idem. Correction coefficients f_j and f_i for EEDI for ships having an ice class. Submitted by Canada, Estonia, Finland and Norway

GHG-WG 2/2/21	Idem. Attained index definition for passengers ships only. Submitted by CLIA
GHG-WG 2/2/22	Idem. CO2 reduction requires efficient instruments based on sound technical solutions. Submitted by CESA
GHG-WG 2/3	Review of the Energy Efficiency Operational Index. Monitoring of the operational index. Submitted by RINA
GHG-WG 2/3/1	Idem. Information on trials according to the interim guidelines for coluntary ship CO2 emission indexing. Submitted by Belgium
GHG-WG 2/4	Management tool on energy efficiency for ships. Possible framework for the introduction of a Ship Efficiency Management Plan (SEMP). Submitted by Japan
GHG-WG 2/4/1	Idem. Guidance on the development of a ship efficiency management plan. Submitted by ICS, BIMCO, Intertanko, Intercargo and OCIMF
GHG-WG 2/4/2	Idem. Proposed framework for action to address energy efficiency of international shipping. Submitted by the United States

3rd Session (28 March – 1 April 2011)

GHG-WG 3/2	Need a purpose of an MBM. How technical and operational measures are the only direct and effective means to deliver cuts in CO2 emissions
GHG-WG 3/2/1	Idem. How an MBM can reduce GHG emissions. Submitted by Cyprus, Denmark, the Marshal Islands and Nigeria
GHG-WG 3/3	Review of propsoed MBMs. Grouping and evaluation of proposed MBMs. Submitted by Greece
GHG-WG 3/3/1	Idem. The evaluation on the relative strengths and weaknesses of the reduction mechanisms employed by the MBM proposals. Submitted by the Republic of Korea
GHG-WG 3/3/2	Idem. Consolidated proposal of “Efficiency Incentive Scheme” based on the leveraged incentive scheme and teh vessel efficiency system. Submitted by Japan and the World of Shipping Council (WSC)
GHG-WG 3/3/3	Idem. The IMO, global MBMs that reduce emissions and the question of principles. Submitted by CSC and WWF
GHG-WG 3/3/4	Idem. The International Greenhouse Gas Fund. Sumbitted by Cyprus, Denmark, The Marshall Islands and Nigeria
GHG-WG 3/3/5	Idem. Examples of emission reduction and costs in a global Emission Trading System for international shipping. Submitted by Norway
GHG-WG 3/3/6	Idem. Common features of proposals for a Global Emission Trading System (ETS) for international shipping. Submitted by France, Germany, Norway and the United Kingdom
GHG-WG 3/3/7	Idem. Cost-effectiveness and administrative costs of market-based measures (ETS, GHG-fund, SECT)
GHG-WG 3/3/8	Idem. Implementation of an emissions trading system in two phases. Submitted by the United Kingdom
GHG-WG 3/3/8/Rev.1	Idem. . Implementation of an emissions trading system in two phases. Submitted by the United Kingdom
GHG-WG 3/3/9	Idem. Relation to relevant conventions and rules. The Organization’s work on GHG emissions and the United Nations Framework Convention on Climate Change and its Kyoto Protocol

- GHG-WG 3/3/10 Idem. Application of the principle of “common but differentiated responsibilities” to the reduction of greenhouse gas emissions from international shipping. Submitted by China
- GHG-WG 3/3/11 Idem. Towards an optimal rebate key for a global maritime MBM. Submitted by WWF
- GHG-WG 3/INF.2 Idem. Two studies on market-based measures. Submitted by the Netherlands
- GHG-WG.3/INF.3 Need a purpose of an MBM : Information on experience with the European Union Emissions Trading Scheme (EU-ETS) and the carbon market. Submitted by the European Commission

INTERSESSIONAL MEETING OF THE WORKING GROUP ON ENERGY EFFICIENCY MEASURES FOR SHIPS

1st Session (28 June – 2 July 2010)

- EE-WG 1/1 Provisional agenda
- EE-WG 1/1/1 Adoption of the agenda
- EE-WG 1/2 Further improvement of the draft text for mandatory requirements of EEDI and SEEMP. Consideration of the draft text of the mandatory EEDI requirements. Submitted by China
- EE-WG 1/2/1 Idem. Technical consideration on the establishment of EEDI baselines. Submitted by China
- EE-WG 1/2/2 Idem. Comments on new draft regulations for energy efficiency improvements. Submitted by ICS
- EE-WG 1/2/3 Idem. Additional elements to be considered when discussing the reduction rate. Submitted. By Norway
- EE-WG 1/2/4 Idem. Definition of deadweight for vehicle carriers. Submitted by Norway
- EE-WG 1/2/5 Idem. Arguments for a more stringent reduction rate for larger containerships. Submitted by Norway
- EE-WG 1/2/6 Idem. Lower size limits for the required EEDI. Submitted by Norway
- EE-WG 1/2/7 Idem. Proposal for a correction to EEDI baseline formula
- EE-WG 1/2/8 Idem. Comments on the draft EEDI Regulations 1 and 4. Submitted by CESA
- EE-WG 1/2/9 Idem. Inclusion of ships with diesel-electric propulsion hitherto existing EEDI approach. Proposal on how to add diesel-electric propelled ships to the list of ships utilizing EEDI. Submitted by Germany and the Netherlands
- EE-WG 1/2/10 Idem. Considerations on the establishment of EEDI-baselines. Submitted by Germany and Sweden
- EE-WG 1/2/11 Idem. Proposals on the coverage of ship sizes for the required EEDI. Submitted by Japan
- EE-WG 1/2/12 Idem. Amendments to the draft legal text regarding mandatory requirements on SEEMP. Submitted by Germany, Japan, Norway and the United States
- EE-WG 1/2/13 Idem. Energy saving devices. Submitted by RINA
- EE-WG 1/3 Development of needed guidelines. Considerations on guidelines for calculation of baselines for non-conventional passenger ships. Submitted by CLIA
- EE-WG 1/3/1 Idem. Proposal for the calculation of baselines for the attained EEDI. Submitted by the Republic of Korea
- EE-WG 1/3/2 Idem. Calculation of EEDI for vessels with dual fuel engines, Submitted by Finland
- EE-WG 1/3/3 Idem. Guidelines for calculation of baselines for use with the Energy Efficiency Design Index. Submitted by Denmark and Japan

- EE-WG 1/3/4 Idem. Effect of shaft generators. Submitted by the Netherlands
- EE-WG 1/3/5 Idem. Verification process for determining the EEDI. Submitted by Norway
- EE-WG 1/3/6 Idem. Proposal for the capacity factor f_i to alleviate safety-related concerns on the method of calculation of EEDI. Submitted by Greece
- EE-WG 1/3/7 Idem. Draft guidelines on survey and certification of the Energy Efficiency Design Index. Submitted by Japan
- EE-WG 1/3/8 Idem. Comments on the guidance for development of SEEMP. Submitted by Vanuatu
- EE-WG 1/4 Consideration of safety issues related to the EEDI. Minimum required speed to ensure safe navigation in adverse conditions. Submitted by IACS
- EE-WG 1/INF.2 Marginal abatement costs and cost effectiveness of Energy Efficiency measures. Submitted by IMarEST)

2nd Session (9 – 13 January 2012)

- EE-WG 2/1 Provisional agenda
- EE-WG 2/1/1 Adoption of the agenda. Annotations to the provisional agenda
- EE-WG 2/2 Further improvement of guidelines on survey and certification of the EEDI. Proposal for a Secrecy Agreement for better IPR protection. Submitted by CESA
- EE-WG 2/2/1 Idem. Various corrigenda items. Submitted by BIMCO.
- EE-WG 2/2/2 Idem. Proposed amendments to the draft attained EEDI calculation guidelines. Submitted by China
- EE-WG 2/2/3 Further improvement of guidelines for the development of a SEEMP. Comments on the guidance for development of vessel SEEMP. Submitted by Vanuatu
- EE-WG 2/2/4 Further improvement of guidelines on the method of calculation of the EEDI for new ships. Proposal on the modification of the correction factor for power (f_p) and capacity (f_i) for ice-classed ships. Submitted by the Republic of Korea
- EE-WG 2/2/5 Idem. An alternative correction factor for chemical tankers. Submitted by Norway
- EE-WG 2/2/6 Idem. Proposal on the cubic capacity correction factor for chemical tankers " f_c ". Submitted by Denmark and Japan
- EE-WG 2/2/7 Further improvement of guidelines on survey and certification of the EEDI. Draft guidelines on the survey and certification of the Energy Efficiency Design Index. Submitted by Japan.
- EE-WG 2/2/8 Further improvement of guidelines for determining minimum propulsion power and speed to enable safe manoeuvring in adverse weather conditions. Propulsion power for safe manoeuvring in adverse conditions. Submitted by IACS
- EE-WG 2/2/9 Further improvement of guidelines on the method of calculation of the EEDI for new ships. Proposal for new correction factors for ice-classed ships. Submitted by Finland.
- EE-WG 2/2/10 Idem. Correction factor for ship-specific voluntary structural enhancement $f_{i\text{VSE}}$. Submitted by IACS
- EE-WG 2/3 EEDI requirements for large tankers and bulk carriers. Analysis of the development in EEDI on large tankers and bulk carriers. Submitted by Denmark
- EE-WG 2/4 EEDI frameworks for ships not covered by the current EEDI. Cubic capacity correction factor for gas carriers. Submitted by SIGTTO
- EE-WG 2/4/1 Idem. Further consideration on the application of the EEDI reference line for gas carriers to LNG ships. Submitted by SIGTTO

- EE-WG 2/4/2 Idem. Considerations of the application of the requirements of the required EEDI for LNG ships. Submitted by China
- EE-WG 2/4/3 Idem. Proposal to facilitate the inclusion of the ro-ro ship segment into the regulations on energy efficiency for ships. Submitted by Sweden
- EE-WG 2/4/4 Idem. Development of an EEDI reference line for new cruise passenger ships. Submitted by CLIA
- EE-WG 2/5 Other guidelines or supporting documents for technical and operational measures. Guidance for the treatment of innovative energy efficiency technologies in calculation and verification of the attained EEDI. Submitted by Japan
- EE-WG 2/7 Any other business. Technical capacity-building to address energy efficiency and control GHG emissions from international shipping.
- EE-WG 2/INF.2 Further improvement of guidelines. Study on the analysis of the effect of the new EEDI requirements on Dutch build and flagged ships. Submitted by the Netherlands
- EE-WG 2/INF.3 Other guidelines or supporting documents for technical and operational measures. Availability factor for a photovoltaic power generation system in the attained EEDI formula. Submitted by Japan
- EE-WG 2/INF.4 Energy efficiency operational indicator. Information on a study describing a method for using the energy efficiency operational indicator (EEOI) on ro-ro passenger ships. Submitted by Denmark

**CONFERENCE OF PARTIES TO THE INTERNATIONAL CONVENTION FOR
THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE
PROTOCOL OF 1978 RELATING THERETO
15 September 1997**

- MP/CONF.3/2 Adoption of the rules of procedure : Provisional rules of procedure
- MP/CONF.3/3 Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Draft Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating Thereto
- MP/CONF.3/4 Consideration and adoption of resolutions and recommendations and related matters. Draft Conference Resolution - Technical Code on emission of nitrogen oxides from marine diesel engines.
- MP/CONF.3/5 Organization of the work of the Conference
- MP/CONF.3/6 Consideration and adoption of resolutions and recommendations and related matters. Draft Conference resolution - Monitoring the worldwide average sulphur content of residual fuel oil supplied for the use on board ships.
- MP/CONF.3/7 Idem. Introduction of harmonized system of survey and certification in Annex VI
- MP/CONF.3/8 Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Comments on regulation 13 of the draft new Annex VI toMARPOL 73/78. Submitted by Poland
- MP/CONF.3/9 Idem Comments and proposed amendments to the draft Annex VI. Submitted by Finland
- MP/CONF.3/10 Idem. Annex VI to MARPOL 73/78, Regulation 14 – Sulphur oxides (SOx). Submitted by BIMCO
- MP/CONF.3/11 Consideration and adoption of resolutions and recommendations and related matters. Perfluorocarbons. Submitted by the United States

MP/CONF.3/12	Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Regulation 13, Nitrogen oxides (NOx). Submitted by the United States
MP/CONF.3/13	Idem. Comments on regulation 4 of the draft new Annex VI to MARPOL 73/78. Submitted by Poland
MP/CONF.3/14	Idem. Comments on regulation 16 of the draft new Annex VI to MARPOL 73/78. Submitted by Sweden
MP/CONF.3/15	Idem. Comments on Article 6 of the draft Protocol. Submitted by Germany, Japan and the Netherlands
MP/CONF.3/16	Idem. Proposal to declare the North Sea as a SOx emission control area. Submitted by Belgium, Denmark, Germany, the Netherlands, Norway, Sweden and the United Kingdom
MP/CONF.3/17	Idem. Comments on regulation 18, 14 and 17 of the draft new Annex VI to MARPOL 73/78. Submitted by ICS
MP/CONF.3/18	Idem. Comment on regulation 13 and 16 of the draft new Annex VI of MARPOL 73/78. Submitted by Japan
MP/CONF.3/19	Idem. Comments on the draft Technical Code on emission of Nitrogen oxides from marine diesel engines. Submitted by Japan
MP/CONF.3/20	Idem. Comments on Regulation 13 of the draft new Annex VI to MARPOL 73/78. Submitted by EUROMOT
MP/CONF.3/21	Idem. Draft guidelines for monitoring of sulphur content of residual fuels (Regulation 14(2)) Submitted by the Netherlands
MP/CONF.3/22	Idem. Draft Conference Resolution on CO2 emissions. Submitted by the Netherlands
MP/CONF.3/23	Idem. Comments on the draft protocol. Submitted by the Netherlands
MP/CONF.3/24	Idem. Proposal to declare areas to the west of the United Kingdom as a SOx emission control area. Submitted by the United Kingdom
MP/CONF.3/25	NOx. Draft Conference Resolution, NOx emissions from existing engines. Submitted by Norway.
MP/CONF.3/26	Idem. Comments on regulation 19 of the draft new Annex VI to MARPOL 73/78. Submitted by Australia
MP/CONF.3/27	Consideration and adoption of resolutions and recommendations and related matters. NOx Technical Code. Submitted by Japan
MP/CONF.3/28	Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Comments on Regulation 18 of the draft new Annex VI to MARPOL 73/78. Submitted by South Africa
MP/CONF.3/29	Consideration and adoption of resolutions and recommendations and related matters. Recognition of the need to reduce sulphur deposition in North West Europe. Submitted by Belgium, Denmark, France, Germany, the Netherlands, Norway, Sweden and the United Kingdom
MP/CONF.3/29/Coor.1	Idem
MP/CONF.3/30	Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Proposed change in Paragraph 2.1 in Appendix II to the Annex VI. Submitted by Belgium

MP/CONF.3/31	Idem. Comments on Article 6 of the draft Protocol. Submitted by Estonia, Germany, Japan, the Netherlands and Poland
MP/CONF.3/32	Idem. A proposal to achieve a global reduction of SOx pollution levels. Submitted by Greece
MP/CONF.3/33	Adoption of the Final Act of the Conference. Final Act of the Conference of Parties to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Text adopted by the Conference
MP/CONF.3/33/Rev.1	Idem.
MP/CONF.3/34	Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Text of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto as adopted by the Conference.
MP/CONF.3/35	Texts of Conference Resolutions 1 to 8 and the Technical Code on control of emission of nitrogen oxides from marine diesel engines
MP/CONF.3/INF.2	Consideration and adoption of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. Marine fuels – Worldwide sulphur levels. Submitted by Norway

MARINE ENVIRONMENT PROTECTION COMMITTEE

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59th Session (13-17 July 2009)

MEPC 59/4	Prevention of air pollution from ships. The United Nations Framework Convention on Climate Change (UNFCCC). Outcome of the United Nations Climate Change Conference held in Poznań, Poland in December 2008
MEPC 59/4/Add.1	Idem. The climate change talks held in Bonn, Germany, from 29 March to 8 April 2009
MEPC 59/4/1	Idem. Sulphur monitoring for 2008
MEPC 59/4/2	Idem. Report on the outcome of the second Intersessional Meeting of the Working Group on Greenhouse Gas Emissions from Ships.
MEPC 59/4/2/Corr.1	Idem. Corrigendum
MEPC 59/4/3	Idem. Response to IMO Secretariat's invitation to ISO to make recommendations regarding fuel characteristics and parameters addressing air quality, ship safety, engine performance and crew health. Submitted by ISO
MEPC 59/4/4	Idem. Second IMO GHG Study 2009. Updated of the 2000 IMO GHG Study – Status report from the Steering Committee
MEPC 59/4/5	Idem. An International Fund for Greenhouse Gas Emissions from Ships. Submitted by Denmark
MEPC 59/4/6	Idem. Assessment of fuel availability and quality. Submitted by ICS, OCIMF, BIMCO and INTERCARGO
MEPC 59/4/7	Idem. Second IMO GHG study 2009. Update of the 2000 IMO GHG Study. Executive Summary.
MEPC 59/4/7/Corr.1	Idem. Corrigendum.

MEPC 59/4/8	Idem. Report of the Intersessional Correspondence Group on greenhouse gas related issues. Submitted by Australia and the Netherlands
MEPC 59/4/9	Idem. Outcome of informal consultations conducted by the Chairman and proposals for further progress
MEPC 59/4/11	Idem. Updated on standardization work in ISO and IEC for shore power. Submitted by ISO
MEPC 59/4/12	Idem. Consideration of the Energy Efficiency Design Index for new ships. Refinements to the “draft guidelines on the method of calculation of the energy efficiency design index for new ships” for conventional passenger ships. Submitted by CLIA
MEPC 59/4/13	Idem. The need for refinement of the Energy Efficiency Design Index (EEDI). Submitted by ICS
MEPC 59/4/14	Idem. Correction coefficients f_j and f_i for EEDI for ships having an ice class. Submitted by Canada, Estonia, Finland, Norway and Sweden
MEPC 59/4/15	Idem. Energy efficiency operational indicator (EEOI). Report of the correspondence group. Submitted by Japan (The coordinator of the correspondence group)
MEPC 59/4/16	Idem. Form of legal instrument addressing greenhouse gas emissions from ships. Submitted by the Islamic Republic of Iran
MEPC 59/4/17	Idem. Technical evaluation of market-based instruments. Submitted by OCIMF
MEPC 59/4/18.	Idem. Market-based measures to reduce greenhouse gas emissions from international maritime transport
MEPC 59/4/19	Idem. Advice by GESAMP on the interim criteria for discharge of washwater from exhaust gas cleaning systems for removal of sulphur-oxides.
MEPC 59/4/20	Idem. Considerations of the EEDI baselines. Submitted by China
MEPC 59/4/21	Idem. Comments on the coefficient “fw” in the EEDI formula. Submitted by China
MEPC 59/4/22	Idem. Calculation of the EEDI for LNG carrier – Case study. Submitted by the Republic of Korea
MEPC 59/4/23	Idem. Definition of ship types to be covered by energy efficiency design index. Submitted by Finland and Sweden
MEPC 59/4/24	Idem. A methodology for establishing an emission cap in an ETS for international shipping. Submitted by Norway
MEPC 59/4/25	Idem. Positive aspects of global emission trading scheme for international shipping. Submitted by France, Germany and Norway
MEPC 59/4/26	Idem. Cornerstone for an outline of a convention of a Global Emission Trading Scheme for international shipping. Submitted by France, Germany and Norway
MEPC 59/4/27	Idem. Comments on verification on the proposed energy efficiency design index (EEDI). Submitted by IACS
MEPC 59/4/28	Idem. Consideration of the energy efficiency design index for new ships. Guideline for the uniform definition of electric power table for EEDI. Submitted by CLIA
MEPC 59/4/29	Idem. Consideration of the energy efficiency design index for new ship. Refinements to the “draft guidelines on the method of calculation of the energy efficiency design index for new ships” for non-conventional passenger ships. Submitted by CLIA
MEPC 59/4/30	Idem. Proposal for an energy efficiency design index verification process. Submitted by the United States

MEPC 59/4/31	Idem. Outcome of BLG 13. Proposed amendments to resolution MEPC.170(57) – Guidelines for exhaust gas cleaning systems. Submitted by Finland
MEPC 59/4/32	Idem. Consideration of adoption of three principles for marker-based instruments. Submitted by CLIA
MEPC 59/4/33	Idem. Draft guidelines on the ship energy management plan (SEMP). Submitted by Japan and the United States
MEPC 59/4/34	Idem. Consideration of a market-based mechanisms to improve the energy efficiency of ships based on the international GHG fund. Submitted by Japan
MEPC 59/4/35	Idem. Consideration of appropriate targets for reducing CO2 emissions from international shipping. Submitted by Japan
MEPC 59/4/36	Idem. The draft interim guidelines on voluntary verification of energy efficiency design index. Submitted by Japan and Norway
MEPC 59/4/37	Idem. Calculation and definition of EEDI baselines. Submitted by Sweden
MEPC 59/4/38	Idem. Phase-in implementation of the energy efficiency design index for standard and complex ship types. Submitted by CESA
MEPC 59/4/39	Idem. Proposal of the ISO 15016 for the development of the EEDI verification procedure and report of status of its computer programme. Submitted by the Republic of Korea
MEPC 59/4/40	Idem. United Nations Framework Convention on Climate Change (UNFCCC). Shipping-relevant ideas and proposals submitted to the UNFCCC in the leading up to the United Nations Climate Change Conference (COP 15) in December 2009.
MEPC 59/4/41	Idem. Energy efficiency design index (EEDI). Definition of deadweight for containerships response to MEPC 59/4/2. Report of the second Intersessional Working Group on GHG emissions from ships. Submitted by the Republic of the Marshall Islands
MEPC 59/4/42	Idem. Assessment of fuel availability and quality. Submitted by IPIECA
MEPC 59/4/43	Idem. Comments on MEPC 59/4/8 and MEPC 59/4/9 relating to the energy efficiency design index, the ship energy management plan and possible market-based instruments. Submitted by Intertanko
MEPC 59/4/44	Idem. Comments on energy efficiency design index (EEDI) baseline computations. Submitted by IACS
MEPC 59/4/45	Idem. International fund for greenhouse gas emissions from ships. Submitted by OCIMF
MEPC 59/4/46	Idem. Comments related to the outcome of informal consultations conducted by the Chairman and proposals for further progress. Submitted by OCIMF
MEPC 59/4/47	Idem. IMO must act decisively to reduce GHG emissions from shipping if it is to retain its competence in technical and political matters related to shipping and GHGs. Submitted by Friends of the Earth International, Greenpeace International and WWF
MEPC 59/4/48	Idem. Comments on MEPC 59/4/2 and MEPC 59/4/4 and an additional approach to addressing maritime GHG emissions. Submitted by the United States
MEPC 59/4/49	Idem. Possible analogy between the methodology for setting the EEDI baseline and establishment of NOx emission values for existing marine diesel engines in the 1990s
MEPC 59/6/5	Interpretations of, and amendments to, MARPOL and related instruments. Proposal to designate an emission control area for nitrogen oxides, sulphur oxides and particulate matter. Submitted by USA and Canada
MEPC 59/INF.6	Idem. Update 2000 Study on greenhouse gas emissions from ships. Phase 1 Report.

MEPC 59/INF.9	Prevention of air pollution from ships. Control of greenhouse gas emissions – market-based instruments. Submitted by ICS
MEPC 59/INF.10	Second IMO GHG Study 2009. Update of the 2000 IMO GHG Study. Final report covering Phase 1 and Phase 2
MEPC 59/INF.10/Corr.1	Second IMO GHG Study 2009. Update of 2000 IMO GHG Study. Final report covering Phase 1 and Phase 2
MEPC 59/INF.11	Received submissions by the coordinators of the Intersessional Correspondence Group on Greenhouse Gas related issues. Submitted by Australia and the Netherlands
MEPC 59/INF.15	Prevention of air pollution from ships. Study pertaining to ship emissions' Impact on climate change and air quality. Submitted by the United States
MEPC 59/INF.19	Idem. Introduction of energy efficiency and fuel management document. Submitted by OCIMF
MEPC 59/INF.26	Idem. Updated information on the draft text of possible framework for the application technical measures to improve the energy efficiency of ships. Submitted by Japan and Norway
MEPC 59/INF.29	Idem. United Nations Framework Convention on Climate Change (UNFCCC). Shipping-relevant ideas and proposals submitted to the UNFCCC process in 2008.
MEPC 59/INF.30	Any other business. World Maritime Day Climate Action Plan
MEPC 59/INF.31	Prevention of air pollution from ships. United Nations Framework Convention on Climate Change (UNFCCC). Shipping relevant ideas and proposals submitted by parties to the UNFCCC from 22 May to 17 June 2009, in preparation of the UNCCC (COP 15)
MEPC 59/J/8	Idem. Information to facilitate discussion on GHG emissions from ships. Decision scenarios for CO ₂ emissions

60th Session (22 – 26 March 2010)

MEPC 60/4	Prevention of air pollution from ships. Control of greenhouse gas emissions from international maritime transport. Summary of matters and documents deferred to the Committee's sixtieth session
MEPC 60/4/1	Idem. Clarification for definitions of ship types and for the use of ice class correction factors <i>f_j</i> and <i>f_i</i> in the calculation of EEDI. Submitted by Finland and Sweden
MEPC 60.4.2	Idem. Draft interim guidelines for the validation of electric power tables for EEDI. Submitted by IACS, CLIA and Interferry
MEPC 60/4/3	Idem. Energy Efficiency Design Index for tankers. Submitted by Intertanko
MEPC 60/4/4	Idem. Energy Efficiency Design Index for propulsion redundancy. Submitted by Intertanko
MEPC 60/4/5	Idem. Report on the trials on the verification of the energy Efficiency Design Index (EEDI). Submitted by Japan
MEPC 60/4/6	Idem. Consideration of ro-ro cargo ship subgroups in the EEDI for new ships. Submitted by Denmark
MEPC 60/4/7	Idem. Guidelines for calculation of baselines for use with the Energy Efficiency Design Index. Submitted by Denmark and Japan
MEPC 60/4/8	Idem. An International fund for greenhouse gas emissions from ships. Submitted by Cyprus, Denmark, the Marshall Islands, Nigeria and IPTA

MEPC 60/4/9	Idem. Outcome of the United Nations Climate Change Conference 2009, reports of the two <i>ad hoc</i> working groups and the work undertaken at the Conference on the basis of the two reports
MEPC 60/4/10	Idem. Market-based instruments: a penalty on trade and development. Submitted by Bahamas
MEPC 60/4/11	Idem. Information on the prospect of energy efficiency improvement for new ships. Submitted by EUROMOT
MEPC 60/4/12	Idem. Further details on the United States proposal to reduce greenhouse gas emissions from international shipping. Submitted by the USA
MEPC 60/4/13	Idem. Control of greenhouse gas emissions from international maritime transport. Submitted by ICS
MEPC 60/4/14	Idem. Consideration of the Energy Efficiency design Index for new ships. Recalculation baseline for container vessels. Submitted by Denmark, the Marshall Islands and the World Shipping Council
MEPC 60/4/15	Idem. Comments on the EEDI baseline formula. Submitted by Greece
MEPC 60/4/16	Idem. The Energy Efficiency design Index (EEDI) and life cycle considerations. Submitted by Greece
MEPC 60/4/17	Idem. The Energy Efficiency design Index (EEDI) and underpowered ships. Submitted by Greece
MEPC 60/4/18	Idem. EEDI calculation method for LNG carriers with diesel-electric propulsion systems. Submitted by the Republic of Korea
MEPC 60/4/19	Idem. Proposed amendments to resolution MEPC.184(59) – 2009 Guidelines for Exhaust Gas Cleaning Systems. Submitted by IMarEST)
MEPC 60/4/20	Idem. Application of power correction factor <i>f_j</i> for enhanced safety. Submitted by Interferry
MEPC 60/4/21	Idem. The importance of using effective anti-fouling coatings, in relation to greenhouse gas emissions from shipping. Submitted by IPPIC
MEPC 60/4/22	Idem. A further outline of a global Emission Trading System (ETS) for international shipping. Submitted by Norway
MEPC 60/4/23	Idem. Alternative emission caps for shipping in 2020 and 2030. Submitted by Norway
MEPC 60/4/24	Idem. Reduction of emission of black carbon from shipping in the Arctic. Submitted by Norway, Sweden and USA
MEPC 60/4/25	Idem. Proposals to ensure robust and uniform application of regulation 4 of Marpol Annex VI. Submitted by Norway
MEPC 60/4/26	Idem. A global emissions trading system for greenhouse gas emissions from international shipping. Submitted by UK
MEPC 60/4/27	Idem. Ozone-depleting substances – accelerated phase-out of hydrochlorofluorocarbons, correct purchasing procedures and possible gaps in data collection and reporting.
MEPC 60/4/28	Idem. Emission “Caps” and reduction targets. Submitted by WSC
MEPC 60/4/29	Idem. Comments on the coefficient “ <i>f_w</i> ” in the EEDI formula. Submitted by China
MEPC 60/4/30	Idem. Considerations of the establishment of EEDI baselines. Submitted by China
MEPC 60/4/31	Idem. Comments on the interim guidelines on the method of calculation of EEDI and the interim guidelines for voluntary verification of EEDI. Submitted by China

MEPC 60/4/32	Idem. IAPP Certificate and relevant supplement. Submitted by IACS
MEPC 60/4/33	Idem. Energy Efficiency Design Index baseline evaluation for tankers, containerships, and LNG carriers. Submitted by IMarEST
MEPC 60/4/34	Idem. Influence of design parameters on the Energy Efficiency Design Index for tankers, containerships, and LNG carriers. Submitted by IMarEST
MEPC 60/4/35	Idem. Mandatory EEDI requirements – Draft text for adding a new part of MARPOL Annex VI for regulation of the energy efficiency of ships. Submitted by Japan, Norway and USA
MEPC 60/4/36	Idem. Analysis on the appropriate values of the reduction rates of the required EEDI. Submitted by Japan
MEPC 60/4/37	Idem. Considerations of a market-based mechanisms: Leveraged incentive scheme to improve the energy efficiency of ships based on international GHG Fund. Submitted by Japan
MEPC 60/4/37/Corr.1	Idem. Corrigendum
MEPC 60/4/38	Idem. Technical information on a vapour pressure control system in order to facilitate the development and the update of VOC management plans. Submitted by Norway
MEPC 60/4/39	Idem. Proposal to establish a Vessel Efficiency System (VES). Submitted by the World Shipping Council
MEPC 60/4/40	Idem. Achieving reduction in greenhouse gas emissions from ships through Port State arrangements utilizing the ship traffic, energy and environment model, STEEM. Submitted by Jamaica
MEPC 60/4/41	Idem. Further elements for the development of an Emissions Trading System for international shipping. Submitted by France
MEPC 60/4/42	Idem. Current status of the revision of the marine fuel specification ISO 8217 factors regarding fuel characteristics and parameters addressing air quality, ship safety. Engine performance and crew health. Submitted by ISO
MEPC 60/4/43	Idem. Common features on documents submitted on a global Emission trading System (ETS) for international shipping. Submitted by France, Germany, Norway and UK
MEPC 60/4/44	Idem. Results of data gathering exercise for the assessment of the Energy Efficiency Design Index (EEDI) for ships carrying liquefied gases in bulk. Submitted by SIGTTO
MEPC 60/4/45	Idem. Proposal for an Energy Efficiency design Index verification process. Submitted by ITTC
MEPC 60/4/46	Idem. Comments on the outcome of the United Nations Climate Change Conference held in Copenhagen, Denmark, Submitted by OCIMF and INTERTANKO
MEPC 60/4/47	Idem. Comments on the interim guidelines on the method of calculation of the Energy Efficiency design Index for new ships based on a study on tests and trials of the EEDI formula. Submitted by Austria, Bulgaria, the Czech Republic, Estonia, France, Germany, Hungary, Ireland, Latvia, Lithuania, Luxembourg, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK and the European Commission
MEPC 60/4/48	Idem. Comments related to trial calculation of the EEDI for subgroups of ro-ro cargo ships. Submitted by Interferry and CESA
MEPC 60/4/49	Idem. An International Fund for Greenhouse Gas emissions from ships. Submitted by Greece
MEPC 60/4/50	Idem. Updated technical evaluation of proposed GHG reduction measures. Submitted by OCIMF

MEPC 60/4/51	Idem. Comments on MEPC 60/4/8/, “An International Fund for Greenhouse Gas emissions from ships”. Submitted by Japan
MEPC 60/4/52	Idem. Tanker Energy Efficiency Management Plan (TEEMP). Submitted by Intertanko
MEPC 60/4/53	Idem. Outcome of COP 15 and the work of MEPC on market-based instruments in 2010. Submitted by WWF and Greenpeace International
MEPC 60/4/54	Idem. Impact assessment of an emission trading scheme with a particular view on developing countries. Submitted by Germany
MEPC 60/4/55	Idem. A rebate mechanism for a market-based instruments for international shipping. Submitted by IUCN
MEPC 60/4/56	Idem. Consideration of the Energy Efficiency Design Index (EEDI) for cruise ships. Submitted by CLIA
MEPC 60/4/57	Idem. Work arrangements for agenda item 4 and proposals for further progress on GHG matters in 2010. Note by the Chairman
MEPC 60/22	Report (Section 4 – Prevention of air pollution from ships; Annex 4 – Statements by Delegations on matters of principle or policy concerning the GHG issue; Annex 5 – Draft amendments to Appendix I of the revised Marpol Annex VI (revised form of supplement to International Air Pollution Prevention Certificate); Annex 6 – Terms of reference for the first intersessional meeting of the Working Group on energy efficiency for ships; Annex 7 – Statements by Delegations on mandatory technical and operational energy efficiency measures for ships following consideration of the Working Group’s report (MEPC 60/WP.9))
MEPC 60/INF.6	Idem. Impact of the ice-class correction factors <i>fi</i> and <i>fj</i> on calculation of EEDI. Submitted by Finland and Sweden
MEPC 60/INF.8	Idem. Practical aspects of a global emissions trading scheme for international shipping. Submitted by France
MEPC 60 / INF.9	Idem. United Nations Climate Change Conference 2009, IMO submissions and activities.
MEPC 60/INF.12	Idem. Climate-change-mitigation finance in the maritime sector. Submitted by the World Bank
MEPC 60/INF. 18	Idem. Assessment of IMO energy efficiency measures for the control of GHG emissions from ships.
MEPC 60/INF.19	Idem. Updated marginal abatement cost curves for shipping. Submitted by Norway
MEPC 60/INF.20	Idem. New inventory of short-lived climate forcing aerosols from international, shipping activity in the Arctic. Submitted by FOEI
MEPC 60/INF.23	Idem. Development of a draft model course for energy efficient ship operations by the World Maritime University

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MEPC 61/4/1	Prevention of air pollution from ships. ISO) 8217:2010 revised specification of marine fuels. Submitted by ISO
MEPC 61/4/3	Idem. Consideration of exhaust gas cleaning systems and their approval pursuant to regulations 4 and 14 of Marpol Annex VI. Submitted by the United States
MEPC 61/4/4	Idem. Ozone-depleting substances : correct purchasing procedures
MEPC 61/4/5	Idem. Assessment of fuel availability and quality. Submitted by ICS, BIMCO, OCIMF and Intercargo

MEPC 61/4/7	Idem. Observations and comments relating to the revised marine fuel specification ISO 8217:2010. Submitted by Norway
MEPC 61/4/9	Idem. Comments relating to the proposed revised marine fuel specification ISO 8217:2010. Submitted by OCIMF
MEPC 61/5/1	Reduction of GHG emission from ships. Outcome of the United Nations Climate Change talks held in Bonn, Germany in May/June 2010
MEPC 61/5/1/Add.1	Idem. Outcome of the intersessional United Nations Climate Change talks held in Bonn, Germany in August 2010.
MEPC 61/5/2	Idem. Report on a trial verification of the Energy Efficiency Design Index (EEDI). Submitted by Germany
MEPC 61/5/3	Idem. Report of the outcome of the Intersessional Meeting of the working Group on energy efficiency measures for ships
MEPC 61/5/7	Idem. Marginal abatement costs and cost-effectiveness of energy-efficiency measures. Submitted by IMarEST
MEPC 61/5/8	Idem. Definition of draught in the calculation of the EEDI. Submitted by RINA
MEPC 61/5/9	Idem. Proposal for cut-off lower limit Y for general cargo ships. Submitted by Belgium, the Netherlands and Sweden
MEPC 61/5/10	Idem. Speed reduction – the key to the fast and efficient reduction of greenhouse gas emissions from ships. Submitted by CSC
MEPC 61/5/11	Idem. Comments on the report of the Intersessional Meeting of the Working Group on energy efficiency measures for ships. Submitted by ICS
MEPC 61/5/12	Idem. Consideration of a principle for alternate calculation or exemption of EEDI in ships with special circumstances. Submitted by Vanuatu
MEPC 61/5/13	Idem. Emission trajectory prediction for shipping. Submitted by OCIMF
MEPC 61/5/14	Idem. Definition of dry cargo carriers/bulk carriers. Submitted by Denmark and ICS
MEPC 61/5/15	Idem. Information to facilitate discussion on GHG emissions from ships.
MEPC 61/5/16	Idem. Further details on the United States proposal to reduce greenhouse gas emissions from international building. Submitted by the United States
MEPC 61/5/17	Idem. Decision criteria for establishing EEDI correction factors. Submitted by the United States
MEPC 61/5/18	Idem. High-level Advisory Group of the United Nations Secretary-General on climate change financing.
MEPC 61/5/18/Rev.1	Idem.
MEPC 61/5/19	Idem. Market-based measures: Inequitable burden on developing countries. Submitted by India
MEPC 61/5/20	Idem. Consideration of CO2 abatement technologies. Submitted by Signapore.
MEPC 61/5/21	Idem. Comments on the draft guidelines on the method of calculation of the attained energy Efficiency design Index fr new ships. Submitted by Greece
MEPC 61/5/22	Idem. Comments on the draft guidelines on survey and certification of the EEDI. Submitted by Greece
MEPC 61/5/23	Idem. Consideration of safety issues related to EEDI. Submitted by Greece

MEPC 61/5/24	Idem. Uncertainties and problems in market-based measures. Submitted by China and India
MEPC 61/5/25	Idem. Proposed amendments to the text regarding correction factor <i>f_i</i> in the EEDI calculation guidelines. Submitted by China
MEPC 61/5/26	Idem. Comments and proposals on the draft regulation text on energy efficiency for ships. Submitted by China
MEPC 61/5/27	Idem. Proposed amendments to the text regarding correction factor <i>f_j</i> in the EEDI ; calculation guidelines. Submitted by China
MEPC 61/5/28	Idem. Comments on the use of credits of the Clean Development Mechanism in market-based measures for international shipping. Submitted by the Republic of Korea
MEPC 61/5/29	Idem. Proposal on EEOI calculation method for containerships. Submitted by the Republic of Korea
MEPC 61/5/30	Idem. Consideration of the Energy Efficiency Design Index for new ships – Comment on voluntary safety enhancements to ship structures. Submitted by IACS
MEPC 61/5/31	Idem. Consideration of the Energy Efficiency Design Index for new ships : Comment on ambient conditions for electrical power table. Submitted by IACS
MEPC 61/5/32	Idem. Consideration of the Energy Efficiency Design Index for new ships : Minimum installed power to maintain safe navigation in adverse conditions. Submitted by IACS
MEPC 61/5/33	Idem. Further information on a rebate mechanism for a market-based measure for international shipping. Submitted by IUCN
MEPC 61/5/34	Idem. Treatment of coefficient “ <i>f_w</i> ” under a mandatory EEDI. Submitted by Japan
MEPC 61/5/35	Idem. Additional information on the technologies for energy efficiency improvement that should be taken into account in setting the EEDI reduction rates. Submitted by Japan
MEPC 61/5/36	Idem. The Form of International Energy Efficiency (IEE) Certificate. Submitted by Japan
MEPC 61/5/37	Idem. Comment on proposals on size limits and reduction rate for the required EEDI. Submitted by ICS
MEPC 61/5/38	Idem. Technical considerations in establishing the EEDI reduction rates and phase-in period. Submitted by the United States
MEPC 61/5/39	Idem. Report on the outcome of the work undertaken by the Expert Group on Feasibility Study and impact assessment of possible market-based measures (MBM-EG)
MEPC 61/7/4	Interpretations of, and amendments to, Marpol and related instruments. Amendment to the NO _x Technical Code 2008 concerning the testing of engines fitted with an NO _x -reducing device. Submitted by Denmark, Germany and Japan
MEPC 61/7/8	Idem. Technical background to amend the NO _x Technical Code 2008 concerning the testing of engines with an NO _x -reducing device. Submitted by Japan
MEPC 61/16/3	Technical Co-operation sub-programme for the protection of the marine environment. Development of a model course on ship energy efficiency management plan.
MEPC 61/INF.2	Reduction of GHG emissions from ships. Full report of the work undertaken by the Expert Group on feasibility study and impact assessment of possible market-based measures.
MEPC 61/INF.2/Corr.1	Idem. Corrigendum
MEPC 61/INF.9	Interpretations of, and amendments to, Marpol and related instruments. Designation of an emission control area for nitrogen oxides, sulphur oxides and particulate matter

Submitted by United States

- MEPC 61/INF.10 Prevention of air pollution from ships. Study to review assessments undertaken of the revised MARPOL Annex VI regulations. Submitted by ICS
- MEPC 61/INF.18 Reduction of GHG emissions from ships. Marginal abatement costs and cost-effectiveness of energy-efficiency measures. Submitted by IMarEST
- MEPC 61/INF.22 Idem. Going slow to reduce emissions – can the current surplus of maritime transport capacity be turned into an opportunity to reduce GHG emissions? Submitted by CSC
- MEPC 61/INF.24 Idem. Further details on the US proposal to reduce greenhouse gas emissions from international shipping. Submitted by the United States

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- MEPC 62/4 Prevention of air pollution from ships. Sulphur monitoring for 2010
- MEPC 62/4/1 Idem. Development of a GISIS module for Marpol Annex VI – portal for mandatory Notifications
- MEPC 62/4/2 Idem. Potential compliance difficulties with NO_x tier III emissions standards. Submitted by ICOMIA
- MEPC 62/4/3 Idem. Reduction of emissions of black carbon from shipping in the Arctic. Submitted by the UNECE on Long-Range Transboundary Air Pollution
- MEPC 62/4/4 Idem. Fuel oil quality and quality control of bunkers : Relevant data. Submitted by Norway and Intertanko
- MEPC 62/4/5 Idem. Report of the Correspondence Group on assessment of availability of fuel oil under Marpol Annex VI. Submitted by USA
- MEPC 62/4/6 Idem. Treatment of coefficient “ f_w ” in the energy efficiency design index and the guidelines for the simulation of ship performance to obtain coefficient “ f_w ”. Submitted by Japan.
- MEPC 62/4/7 Idem. Report of the Correspondence Group. Submitted by Japan
- MEPC 62/4/8 Idem. Verification of the EEDI and comments on ISO 15016:2002 and the equivalent methods for performing sea trials. Submitted by Norway
- MEPC 62/4/9 Idem. Possible approach for the review of the status of technological developments to implement the Tier III NO_x emissions standards
- MEPC 62/4/10 Idem. Work plan for the reduction of Black carbon emissions from international shipping. Submitted by Norway
- MEPC 62/4/11 Idem. Fuel oil quality. Submitted by Norway
- MEPC 62/4/12 Idem. Sampling fuel oil. Submitted by Norway
- MEPC 62/4/13 Idem. Certification and continued compliance of engines utilizing NO_x reducing devices to comply with regulation 13 of Marpol Annex VI. Submitted by Ireland and the United States
- MEPC 62/4/14 Idem. Proposals on the draft amendments to the NO_x Technical Code 2008 and its associated SCR guidelines. Submitted by China
- MEPC 62/4/15 Idem. Proposals on SCR guidelines. Submitted by China
- MEPC 62/4/16 Idem. Reduction of emissions of Black Carbon from shipping in the high northern latitudes. Submitted by CSC, FOEI and WWF

MEPC 62/4/17	Idem. Further study to review the impacts of the sulphur requirements in the revised Marpol Annex VI. Submitted by ICS
MEPC 62/4/18	Idem. Consideration of climate change in the Arctic by Black Carbon emission from shipping. Submitted by the Republic of Korea
MEPC 62/4/19	Idem. Studies of the impacts of the sulphur requirements in Marpol Annex VI for designated Emission Control Areas. Submitted by the United States
MEPC 62/4/20	Idem. Technical developments to implement Tier III NOx standards. Submitted by the United States
MEPC 62/4/21	Idem. Comment on the report of the Correspondence Group. Submitted by ICS
MEPC 62/5	Reduction of GHG emissions from ships. Outcome of the United Nations Climate Change Conference held in Cancún, Mexico from 29 November to 10 December 2010
MEPC 62/5/Add.1	Idem. Outcome of the United Nations Climate Change Talks held in Bonn, Germany from 6 to 17 June 2011
MEPC 62/5/1	Idem. Report of the third Intersessional Meeting of the working group on greenhouse gas emissions from ships
MEPC 62/5/2	Idem. Marginal abatement costs and cost-effectiveness of energy-efficiency measures. Submitted by IMarEST
MEPC 62/5/3	Idem. Treatment of coefficient " f_w " in the Energy Efficiency Design Index and the guidelines for the simulation of ship performance to obtain coefficient " f_w "
MEPC 62/5/4	Idem. Report of the Correspondence Group. Submitted by Japan
MEPC 62/5/5	Idem. Verification of the EEDI and comments on ISO 15016:2002 and the equivalent methods for performing sea trials. Submitted by Norway
MEPC 62/5/6	Idem. Further prospects for EEDI improvement. Submitted by Greece
MEPC 62/5/7	Idem. MBM proposals: a way ahead. Submitted by Greece
MEPC 62/5/8	Idem. Efficiency improvements within the international marine sector. Submitted by the United States
MEPC 62/5/9	Idem. Turkey's position on GHG emissions issues. Submitted by Turkey
MEPC 62/5/10	Idem. Comments on the proposed mandatory energy efficiency regulations. Submitted by China, Saudi Arabia and South Africa.
MEPC 62/5/11	Idem. Proposal on correcting the calculation procedure for energy efficiency operational indicator. Submitted by Russian Federation
MEPC 62/5/12	Idem. Draft interim guidelines for determination of the effective CO2 reduction by wind propulsion systems. Submitted by Germany
MEPC 62/5/13	Idem. Mandatory CO2 emission cut targets through technical and operational measures. Submitted by the Bahamas
MEPC 62/5/14	Idem. Ensuring no net incidence on developing countries from a global maritime MBM. Submitted by WWF
MEPC 62/5/15	Idem. Possible uses of revenues generated by an emission trading system. Submitted by Germany
MEPC 62/5/16	Idem. Consideration of the energy efficiency design index for new ships. A proposal on removing the coefficient " f_w " from EEDI formula. Submitted by China

MEPC 62/5/17	Idem. Detail treatments of innovative energy efficiency technologies for calculation of the attained EEDI. Submitted by Japan
MEPC 62/5/18	Idem. Second report of the Correspondence Group. Submitted by Japan
MEPC 62/5/19	Idem. Consideration of the energy efficiency design index for new ships. Minimum propulsion power to ensure safe manoeuvring in adverse conditions. Submitted by BIMCO, CESA, IACS, INTERCARGO, INTERTANKO and WSC
MEPC 62/5/20	Idem. Considerations on technical and operational measures to reduce GHG emissions from ships. Submitted by Brazil
MEPC 62/5/21	Idem. Report of the Joint Industry Working Group preparing industry guidelines to facilitate consistent application of the EEDI. Submitted by BIMCO, CESA, IACS, INTERCARGO, INTERTANKO and OCIMF
MEPC 62/5/22	Idem. Consideration of safety issues related to EEDI – Guidelines for ship-specific voluntary structural enhancements. Submitted by Greece
MEPC 62/5/23	Idem. Verification of EEDI, treatment of coefficient " f_w " and comments on ISO 15016:2002 and the equivalent methods for performing sea trials. Submitted by Greece
MEPC 62/5/24	Idem. Proposal to modify the definition of capacity of container ships for EEDI calculation. Submitted by the Republic of Korea
MEPC 62/5/25	Idem. Proposal of the criteria on the energy saving devices and technologies to be deducted in the calculation of EEDI. Submitted by the Republic of Korea
MEPC 62/5/26	Idem. Proposal on the correction factor for power (f_p) and capacity (f_i) for ice-classes ships. Submitted by the Republic of Korea
MEPC 62/5/27	Idem. Possible incompatibility between WTO Rules and a market-based measure for international shipping. Submitted by India
MEPC 62/5/28	Idem. Comments on the report of the third Intersessional Meeting of the Working Group on greenhouse gas emissions from ships. Submitted by Panama
MEPC 62/5/29	Idem. Draft model course for energy efficient operation of ships
MEPC 62/5/30	Idem. Comments on the calculation of parameters for determination of EEDI reference values and correction factors for ice classed ships. Submitted by Finland and Sweden
MEPC 62/5/31	Idem. Comments on the guidelines on the method of calculation of the energy efficiency design index for new ships. Submitted by Vanuatu
MEPC 62/5/32	Idem. Comments on document MEPC 62/5/5 "Verification of the EEDI and comments on ISO 15016:2002 and the equivalent methods for performing sea trials". Submitted by Japan and ITTC
MEPC 62/5/33	Idem. The International Greenhouse Gas Fund : strengths and weaknesses. Submitted by Cyprus, Denmark, the Marshall Islands, Liberia, Nigeria, the Republic of Korea and the IPTA
MEPC 62/5/34	Idem. Comment on document MEPC 62/5/15 on the possible use of revenues generated by an emissions trading systems. Submitted by France
MEPC 62/6/3	Consideration and adoption of amendments to mandatory instruments. Amendments to MARPOL Annex VI – Inclusion of regulations on energy efficiency for ships
MEPC 62/6/4	Idem. Calculation of parameters for determination of EEDI reference values
MEPC 62/6/4/Corr.1	Idem. Calculation of parameters for determination of EEDI reference values. Corrigendum

MEPC 62/6/5	Idem. Proposed amendments to Marpol Annex VI. Submitted by Australia, Belgium, Canada, Denmark,. Germany, Japan, Liberia, Norway and the United Kingdom
MEPC 62/6/7	Idem. Draft resolutions on amendments to Marpol Annex VI – inclusion of regulations on energy efficiency for ships. Submitted by Japan and the Marshall Islands
MEPC 62/6/12	Idem. Comments on energy efficiency related amendments to Marpol Annex VI. Submitted by CESA
MEPC 62/6/13	Idem. Introduction of a cubic capacity correction factor into the EEDI formula. Submitted by IPTA
MEPC 62/6/12	Idem. Comments on energy efficiency related amendments to MARPOL Annex VI. Submitted by CESA
MEPC 62/6/14	Idem. Calculation of parameters for determination of EEDI reference values. Submitted by Netherlands
MEPC 62/6/15	Idem. Comments on the Note by the Secretariat on amendments to Marpol Annex VI – Inclusion of regulations on energy efficiency for ships. Submitted by Argentina, Brazil, Chile, China, Ecuador, India, Nicaragua, Peru, the Philippines, South Africa and Venezuela
MEPC 62/6/16	Idem. Proposed amendments to draft regulations on energy efficiency for ships. Submitted by China
MEPC 62/6/19	Idem A proposal for the EEDI reduction factors for containerships, tankers and bulk carriers. Submitted by Greece
MEPC 62/6/20	Idem. Considerations of the application of the EEDI reference lines to LNG vessels. Submitted by SIGTTO
MEPC 62/6/21	Idem. Amendments to Marpol Annex VI – Inclusion of regulations on efficiency for ships. Submitted by Singapore
MEPC 62/6/23	Idem. Comments on the proposed amendments to MARPOL Annex VI. Submitted by Vanuatu
MEPC 62/6/24	Idem. Amendments to Marpol Annex VI – Inclusion of regulations on energy efficiency for ships. Review of EEDI. Submitted by ICS
MEPC 62/6/26	Idem. Rectification of drafting omissions of draft amendments to regulations on energy efficiency for ships of Marpo Annex VI (EEDI). Submitted by Germany
MEPC 62/7/8	Interpretations of, and amendments to, Marpol and related instruments. Minimum requirements for IMO circulars related to notification of the certification of an approved method (Marpol Annex VI, regulations 13.7.1 and 13.7.2). Submitted by IACS
MEPC 62/24	Report (Section 4 – Prevention of air pollution from ships; Section 5 – Reduction of GHG emissions from ships; Annex 5 – Draft amendments to the NOx Technical Code 2008; Annex 6 – Resolution MEPC.198(62) – 2011 guidelines addressing additional aspects to the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reduction (SCR) systems; Annex 7 – Resolution MEPC.199(62) – 2011 guidelines for reception facilities under Marpol Annex VI; Annex 8 – Statements by the Delegations of Brazil, India, Peru and Poland on matters of principle or policy concerning reduction of GHG emissions from ships; Annex 10 – Terms of reference for intersessional meeting of the Working Group on energy efficiency measures for ships; Annex 11 – Statement by the Observer of CESA during the debate on GHG issues; Annex 14 – Resolution MEPC.202(62) – Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (designation of the United States Caribbean Sea Emission Control Area and exemption of certain ships operating in the North American Emission Control Area and the United States Caribbean Sea Emission Control Area under regulation 13 and 11 and appendix VII of Marpol Annex VI); Annex 16 – MEPC Circular on the date of taking effect of the amendments to Regulation 13 and 14 of Marpol Annex VI adopted by resolution MEPC.202(62); Annex 17 – Statements by the Delegations

of Brazil, India, Australia and Chile on the circulation of the proposed amendments to Marpol Annex VI; **Annex 18** – Statement by the Delegation of Sweden on the ro-ro segment and the proposal for a resolution on the future work of the Organization pertaining to Marpol Annex VI; **Annex 19** – resolution MEPC.203(62) – Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (inclusion of regulations on energy efficiency for ships in Marpol Annex VI); **Annex 20** – Statements by the Delegations of Brazil, China, India, Saudi Arabia and the Bolivarian Republic of Venezuela and the observers of the Pacific Environment and Clean Coalition after the adoption of amendments to Marpol Annex VI; **Annex 21** – Draft amendments to Marpol, Annexes I, II, IV, V, and VI on regional arrangements for port reception facilities)

MEPC 62/INF.2	Reduction of GHG emissions from ships. Ministerial Declaration on Global Environment and Energy in Transport
MEPC 62/INF.3	Idem. High-level Advisory Group of the United Nations Secretary-General on Climate Change Financing
MEPC 62/INF.6	Idem. Results of the fourth Seoul International Marine Forum. Submitted by the Republic of Korea
MEPC 62/INF.7	Idem. Marginal abatement costs and cost effectiveness of energy-efficiency measures. Submitted by IMarEST
MEPC 62/INF.8	Prevention of air pollution from ships. Reduction of time for engine shop test and the subsequent economic and environmental effects. Submitted by the republic of Korea
MEPC 62/INF.9	Idem. Supplement to the Report of the correspondence group on assessment of availability of fuel oil under Marpol Annex VI. Submitted by USA
MEPC 62/INF.10	Idem. Example of a ship energy efficiency management plan. Submitted by OCIMF
MEPC 62/INF.12	Reduction of GHG emission from ships. Project to develop a SEEMP using a structured methodology and the resulting improvement in energy efficiency. Submitted by OCIMF
MEPC 62/INF.16	Idem. Consideration of the Energy Efficiency Design Index (EEDI) for new cruise ships. Submitted by CLIA
MEPC 62/INF.21	Idem. Consideration of the Energy Efficiency Design Index (EEDI) for new ships. Minimum propulsion power to ensure safe manoeuvring in adverse conditions. Submitted by BIMCO, CESA, IACS, INTERCARGO, INTERTANK and WSC
MEPC 62/INF.23	Idem. Potential additional energy efficiency benefits arising from advanced fluoropolymer foul release coatings. Submitted by United Kingdom
MEPC 62/INF.32	Prevention of air pollution from ships. Updated study estimating premature mortality above 40 degrees north latitude resulting from primary particulate emission from international shipping activity. Submitted by CSC
MEPC 62/INF.33	Idem. New assessment of technologies to reduce emissions of black carbon from international shipping. Submitted by CSC
MEPC 62/INF.34	Reducing of GHG emissions from ships. Global wind specification along the main global shipping routes to be applied in the EEDI calculation of wind propulsion systems. Submitted by Germany
MEPC 62/INF.35	Idem. Calculation method to be applied in the EEDI calculation of wind propulsion systems. Submitted by Germany
MEPC 62/INF.37	Idem. Detail treatment of innovative energy efficiency technologies for calculation of the attained EEDI. Submitted by Japan
MEPC 62/INF.39	Idem. Draft model course for energy efficient operation of ships

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MEPC 63/4	Air pollution and energy efficiency. Guidelines for calculation of reference lines for use with the EEDI
MEPC 63/4/1	Idem. Estimated CO2 emissions reduction from introduction of mandatory technical and operational energy efficiency measures for ships. Executive summary
MEPC 63/4/1/Corr.1	Idem. Estimates CO2 emissions reduction from introduction of mandatory technical and operational energy efficiency measures for ships. Corrigendum
MEPC 63/4/2	Designated ports at which VOC emissions are regulated
MEPC 63/4/3	Idem. Development of an EEDI reference line for new cruise passenger ships. Submitted by CLIA
MEPC 63/4/4	Idem. ITTC Specialist Technical Committee established as a reaction to MEP 62/5/32. Submitted by ITTC
MEPC 63/4/5	Idem. Consideration of a draft IMO model course for energy efficient operation of ships
MEPC 63/4/6	Idem. Unified interpretation regarding applicability of different phases of EEDI. Submitted by India
MEPC 63/4/7	Idem. Progress on the method of calculation of attained energy efficiency design index for new cruise passenger ships Submitted by CLIA
MEPC 63/4/8	Idem. A transparent and reliable hull and propeller performance standard. Submitted by CSC
MEPC 63/4/9	Idem. Clarifications on MARPOL Annex VI regulations on energy efficiency for Ships. Submitted by China
MEPC 63/4/10	Idem. Considerations on Energy Efficiency Design Index on ro-pax. Submitted by Italy
MEPC 63/4/11	Idem. Report of the second Intersessional Meeting of the Working Group on Energy Efficiency Measures for Ships
MEPC 63/4/12	Idem. Proposed interpretation of the term "major conversion". Submitted by the IACS
MEPC 63/3/13	Idem. Treatment of ozone-depleting substances used to service ships
MEPC 63/4/14	Idem. EEDI reduction factors for large tankers and bulk carriers
MEPC 63/4/15	Idem. Minimum design speed for bulk carries and oil tankers
MEPC 63/4/16	Idem. Comments on the proposed amendments to the draft Guidelines on Survey and Certification of the EEDI. Submitted by ICS
MEPC 63/4/17	Idem. Application of cubic capacity correction factor to tankers. Submitted by BIMCO, Intertanko, OCIMF and RINA
MEPC 63/5	Reduction of GHG emissions from ships. Documents deferred from MEPC 62 for consideration at MEPC 63
MEPC 63/5/1	Idem. Draft regulations to be included in Marpol Annex VI for the control of CO2 emissions from ships. Bote by Bahamas

MEPC 63/5/2	Idem. Further work on Market-based Measures towards MEPC 65 impact assessments t proposed MBMs to continue.
MEPC 63/5/3	Idem. Efficiency Incentive Scheme (EIS). Submitted by Japan and World Shipping Council
MEPC 63/5/4	Idem. Draft MEPC resolution on capacity-building, technical assistance and transfer of technology related to energy efficiency measures for ships.
MEPC 63/5/5	Idem. Outcome of the United Nations Climate Change Conference held in Durban, South Africa from 28 November to 11 December 2011
MEPC 63/5/6	Idem. Ensuring no net incidence on developing countries from a global maritime market-based mechanism. Submitted by WWF
MEPC 63/5/7	Idem. G20 – Report of the World Bank and IMF on “Mobilizing climate finance”. Submitted by France
MEPC 63/5/8	Idem. Market Based Measures – Impact on India’s shipping route. Submitted by India
MEPC 63/5/9	Idem. Design and implementation of a worldwide maritime Emission Trading Scheme. Results of a scientif study. Submitted b Germany
MEPC 63/5/10	Idem. Measures to reduce greenhouse gas emissions from ships. Submitted by the Russian Federation
MEPC 63/5/11	Idem. Comments on the feasibility study and impact assessment of the submitted MBMs. Submitted by China
MEPC 63/5/12	Idem. Application of the EEDI to existing ships. Submitted by INTERCARGO.
MEPC 63/5/13	Idem. GHG emissions from existing vessels. Submitted by WWF and CSC
MEPC 63/16/6	Technical Co-operation Sub-programme for the protection of the marine environment. Update on the implementation of Technical Cooperation Project on “Building capacities in East Asia countries to address Greenhouse Gas Emissions (GHG) from ships”
MEPC 63/23	Report. (Section 4 - Air Pollution and Energy Efficiency; Section 5 – Reduction of GHG emissions from ships; Annex 7 – Statement by the Delegation of China on a study concerning CO2 emission reductions from the mandatory technical and operational measures for ships; Annex 8 – Resolution MEPC.212.(63) - 2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships; Annex 9 – Resolution MEPC.213(63)- 2012 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP); Annex 10 – Resolution MEPC 214(63) – 2012 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI) ; Annex 11 – Resolution MEPC.215(63) – Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI); Annex 13 – Statements by the Delegation of Australia, Brazil, China, India, Sweden and the United Kingdom on the draft MEPC Resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships; Annex 14 – General statements by the Delegations of Brazil, Chile and India on matters of principle or policy concerning reduction of greenhouse gas emissions; Annex 15 – Statements by the Delegations of Brazil and Japan pn the consideration and possible consolidation of MBM proposals; Annex 16 – Statements by the Delegations of Brazil and the Republic of Korea on climate change and use of MBM revenues; Annex 17 – Statements by the Delegation of India on the relation between an MBM for international shipping and the WTO rules; Annex 18 – Statement by a Representative of the UNFCCC Secretariat on UFCCC matters; Annex 19 – Statement by the Delgation of Brazil on UNFCCC matters; Annex 21 – Resolution MEPC.217(63) – Amendments to the Annex of the Protocol of 1997 to amend MARPOL 73, as modified by the Protocol of 1978 relating thereto (Regional arrangements for port reception facilities under Marpol Annex VI and certification for marine diesel engines fitted with selective catalytic reduction systems under the NOx Technical Code 2008); Annex 23 – Statement by the Delegation of Cyprus after adoption of the amendments to Marpol Annexes I, II, IV, V and VI on regional arrangements for port reception facilities)

MEPC 63/INF.2	Air pollution and energy efficiency. Estimated CO ₂ emissions reduction from introduction of mandatory technical and operational energy efficiency measures for ships. (Annex - Project Final Report – Assessment of IMO mandated energy efficiency measures for international shipping)
MEPC 63/INF.5	Idem. Information on the progress on the method of calculation of attained energy efficiency index for new cruise passenger ships. Submitted by CLIA
MEPC 63/INF.7	Idem. GHG emission-mitigating measures for oil tankers. Submitted by OCIMF
MEPC 63/INF.8	Idem. Additional information on the recommended procedures and guidelines of the International Towing Tank Conference. Submitted by ITTC
MEPC 63/INF.13	Idem. Cost analysis on the application of efficiency improvement measures in the maritime fleet. Submitted by Japan
MEPC 63/INF.14	Reduction of GHG emission from ships. Design and implementation of a worldwide maritime Emission Trading Scheme : Full report. Submitted by Germany
MEPC 63/INF.17	Idem. Results from a study on Energy Efficiency Design Index on ro-pax. Submitted by Italy

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MEPC 64/4	Air pollution and energy efficiency. Sulphur monitoring for 2011
MEPC 64/4/1	Idem. Draft MEPC Resolution on Promotion of Technical Co-operation and Transfer of Technology relating to the improvement of energy efficiency of ships.
MEPC 64/4/3	Idem. Onshore power supply
MEPC 64/4/4	Idem. Ozone-depleting substances
MEPC 64/4/5	Idem. Draft IMO model course on energy-efficient operation of ships
MEPC 64/4/6	Idem. Development of the EEDI reference line for ro-ro cargo ships (vehicle carrier). Submitted by Denmark, Japan, Norway and WSC
MEPC 64/4/7	Idem. Draft guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition. Submitted by Japan
MEPC 64/4/8	Idem. Guidance on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI. Submitted by Denmark, Germany and Japan
MEPC 64/4/9	Idem. Development of the EEDI reference lines for ro-ro cargo ships and ro-ro passenger ships. Submitted by Denmark, Japan and Norway
MEPC 64/4/10	Idem. Capacity for ro-ro passenger ships when calculating the energy efficient design index for new ships. Submitted by Denmark, Japan and Norway
MEPC 64/4/11	Idem. Auxiliary power P_{AE} for calculation of the reference line for ro-ro passenger ships. Submitted by Denmark, Japan and Norway
MEPC 64/4/12	Idem. Interpretation of the terms “new ships” and “major conversion”. Submitted by IACS
MEPC 64/4/13	Idem. Consideration of the Energy Design Index for new ships : Minimum propulsion power to maintain the manoeuvrability in adverse conditions. Submitted by IACS, BIMCO, INTERCARGO, INTERTANKO and OCIMF
MEPC 64/4/14	Idem. Proposal for the inclusion of the ro-ro cargo and ro-ro passenger ship types into the energy efficiency regulatory framework. Submitted by Germany, Sweden and CESA
MEPC 64/4/15	Idem. ITTC recommended procedure 7.5-04001-01.2, “Speed/power trials, part 2, analysis of speed/power trial data”. Submitted by ITTC

MEPC 64/4/16	Idem. Interim Report of the Correspondence Group on Assessment of technological developments to implement the Tier III NOx emission standards under MARPOL Annex VI. Submitted by USA
MEPC 64/4/17	Idem. Ensuring availability of fuels compliant with MARPOL Annex VI by 2020. Submitted by ICS
MEPC 64/4/18	Idem. Proposal for correction factors to include within the EEDI regulations to reduce the high scatter of general cargo ships smaller than 20,000 DWT. Submitted by the Netherlands
MEPC 64/4/19	Idem. Development of an EEDI reference line for cruise passenger ships. Submitted by CLIA
MEPC 64/4/20	Idem. Proposed amendments to regulation 21 of MARPOL Annex VI. Development of reduction factors and lower size thresholds for ro-ro cargo ships and ro-ro passenger ships. Submitted by Denmark, Japan and Norway
MEPC 64/4/21	Idem. Development of EEDI methodology for vessels not covered by current regulation. Submitted by Germany
MEPC 64/4/22	Idem. Draft MEPC resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships.
MEPC 64/4/23	Idem. Inclusion of the ro-ro cargo and ro-ro passenger ship types into the energy efficiency regulatory framework. Submitted by Interferry
MEPC 64/4/24	Idem. Promotion of technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships. Submitted by Angola, China, Jamaica, Nigeria, South Africa and Venezuela
MEPC 64/4/25	Idem. Proposed amendments to regulation 21 of MARPOL Annex VI. Development of the lower size threshold and reduction factors for ro-ro cargo ships (vehicle carriers). Submitted by Denmark, Japan, Norway and WSC
MEPC 64/4/26	Idem. Development of EEDI reference line for LNG carriers. Submitted by Japan, Liberia and SIGTTO
MEPC 64/4/27	Idem. Proposed amendments to regulation 21 of MARPOL Annex VI. Considerations of the reduction rates of EEDI for large oil tankers and bulk carriers. Submitted by China
MEPC 64/4/28	Idem. Comments on the draft guidelines for the calculation of coefficient f_w . Submitted by China
MEPC 64/4/30	Idem. Draft MEPC resolution on promotion of technical co-operation and technology transfer relating to the improvement of energy efficiency of ships. Submitted by Angola, Argentina, Brazil, China, India, Jamaica, Nigeria, Peru, South Africa and Venezuela
MEPC 64/4/31	Idem. Implementation of chapter 4 of MARPOL Annex VI. Submitted by IACS
MEPC 64/4/32	Idem. Development of the first version of industry guidelines on calculation and verification of the Energy Efficiency Design Index (EEDI). Submitted by BIMCO, CESA, IACS, ICS, INTERCARGO, INTERTANKO, ITTC, OCIMF and WSC
MEPC 64/4/33	Idem. Proposed elements for enhancing implementation requirements for SEEMP and SEEMP guidelines. Submitted by WWF and CSC
MEPC 64/4/34	Idem. Progress on development of an attained Energy Efficiency Design Index (EEDI) for new cruise passenger ships. Submitted by CLIA
MEPC 64/4/35	Idem. Report of the result of technological development of SCR system for the Tier III NOx emission standards. Submitted by Japan

MEPC 64/4/36	Idem. Calculation of required EEDI for specialized ships designed to carry fruit juices in bulk. Submitted by ICS
MEPC 64/4/36/Rev.	Idem. Calculation of required EEDI for specialized ships designed to carry fruit juices in bulk. Submitted by Liberia and ICS
MEPC 64/4/37	Idem. Minimum propulsion power to maintain the manoeuvrability in adverse conditions. Submitted by Greece
MEPC 64/4/38	Idem. Draft guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition. Submitted by Greece
MEPC 64/4/39	Idem. Guidance on the treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI. Submitted by Greece
MEPC 64/4/40	Idem. SCR reductant dosing control strategy and its applicability to NO _x reduction rate. Submitted by USA
MEPC 64/4/41	Idem. Assessment of availability of fuel oil under MARPOL Annex VI. Submitted by USA
MEPC 64/4/42	Idem. Comments on the proposed interim Guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions. Submitted by Japan and Republic of Korea
MEPC 64/4/43	Idem. Comments on document MEPC 64/4/15 – ITTC recommended procedure 7.5-04-01-01.2, “Speed/power trials, part 2, analysis of speed/power trial data”. Submitted by Japan
MEPC 64/4/43/Rev.1	Idem. Comments on document MEPC 64/4/15 – ITTC recommended procedure 7.5-04-01-01.2, “Speed/power trials, part 2, analysis of speed/power trial data”. Submitted by Japan and the Republic of Korea
MEPC 64/4/44	Idem. Draft MEPC resolution on capacity-building, technical assistance and transfer of technology related to energy efficiency measures for ships. Submitted by Australia, Canada, Germany, Japan, the Marshall Islands, Norway and USA
MEPC 64/4/45	Idem. Interpretation of the term “major conversion”. Submitted by USA
MEPC 64/4/46	Idem. Comments on document MEPC 64/4/22 by the Vice-Chairman. Submitted by South Africa
MEPC 64/5	Reduction of GHG emissions from ships
MEPC 64/5/1	Idem. Outcome of the United Nations Climate Change Conference held in Bonn, Germany from 14 to 25 May 2012.
MEPC 64/5/2	Idem. Draft legal text on the modified Efficiency Incentive Scheme (EIS). Submitted by Japan
MEPC 64/5/3	Idem. Possible incompatibility between the WTO rules and Market-Based Measures for international shipping. Submitted by India and Saudi Arabia
MEPC 64/5/4	Idem. Elaboration on the port state levy proposal. Submitted by Jamaica
MEPC 64/5/5	Idem. Draft outline for an update of the GHG emissions estimate for international shipping.
MEPC 64/5/6	Idem. Further details on the proposal of the United States to reduce greenhouse gas emissions from international shipping. Submitted by USA
MEPC 64/5/7	Idem. Proposed amendments to MARPOL Annex VI. Draft legal text with respect to the proposal of the United States to reduce greenhouse gas emissions from international shipping. Submitted by USA
MEPC 64/5/8	Idem. Reducing global ship emissions using a speed-related GHG or compensation fund. Submitted by CSC

MEPC 64/5/9	Idem. Further work on GHG emissions from ships. Submitted by Brazil, Shina, India, Peru, Saudi Arabia and South Africa
MEPC/64/5/10	Idem. Draft legal text on uses of financing generated from a maritime MBM. Submitted by WWF
MEPC 64/5/11	Idem. Operational energy efficiency of new and existing ships. Submitted by ICS
MEPC 64/5/12	Idem. Incorporating impact of trading distances in the Rebate Mechanism. Submitted by WWF
MEPC 64/23	Report (Section 4 – Air pollution and energy efficiency; Section 5 – Reduction of GHG emissions from ships; Annex 4 – Statement by the Delegation of Venezuela on the draft MEPC Resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships; Annex 5 – Statement by the Observer of ICOMIA on the review of the satus of the technological develoments to implement tier III Nox emission standards; Annex 6 – Statement by the Delegation of China, Denmark and Greece on the report of the Working Group on air pollution and energy efficiency (MEPC 64/WP.11); Annex 7 – Unified interpretations to Marpol Annex VI; Annex 8 – Resolution MEPC.224(64) – Amendments to the 2012 guidelines on te method of calculation of the attained energy efficiency design index (EEDI) for new ships; Annex 9 – Amendments to footnote 2 of the 2012 Guidelines on survey and certification of the energy efficiency design index (EEDI); Annex 20 – Dradt amendments to Marpol Annexes I, II, III, IV, V and VI (to make the III Code mandatory)
MEPC 64/INF.3	Air pollution and energy efficiency. Update of the draft IMO model curse on energy-efficient operation of ships
MEPC 64/INF.6	Air Pollution and energy efficiency. Additional information on ITTC Recommended Procedure 7.5-04-0101.2, “Speed/power trials, part 2, analysis of speed/power trial data”. Submitted by the ITTC
MEPC 64/INF.7	Idem. Background information to document MEPC 64/4/13. Submitted by IACS
MEPC 64/INF.8	Idem. Supplementary information to the interim Report of the Correspondence Group on Assessment of Technological Development to implement the Tier III NOx emission standards under MARPOL Annex VI. Submitted by USA
MEPC 64/INF.9	Idem. Study on a fairer inclusion of small general cargo ships and small containerships within the EEDI regulatory framework. Submitted by the Netherlands
MEPC 64/INF.10	Idem. Study on the treatment of ozone-depleting substances used to service ships
MEPC 64/INF.14	Reduction of GHG emissions from ships. Smarter Steaming Ahead : Policy options, costs and benefits of regulated steaming. Submitted by CSC
MEPC 64/INF.15	Idem. Schematic outline of the modified Efficiency Incentive Scheme (EIS). Submitted by Japan
MEPC 64/INF.22	Air pollution and energy efficiency. First version of industry guidelines on calculation and verification of the Energy Efficiency Design Index (EEDI). Submitted by BIMCO, CSA, IACS, INTERCARGO, INERTANKO, ITTC, OCIMF and WSC
MEPC 64/INF.23	Idem. Update on the proposal for “A transparent and reliable hull and propeller performance standard”. Submitted by CSC
MEPC 64/INF.28	Idem. Consideration by the Montreal Protocol of the treatment of ODS used by ships
MEPC 64/INF.31	Reductin of GHG emissions from ships. Green Climate Fund

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MEPC 65/4	Air pollution and energy efficiency. Report of the Working Group on Air Pollution and Energy Efficiency (Part 2). Submitted by the Chairman of the Working Group
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MEPC 65/4/1	Idem. Draft MEPC resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships.
MEPC 65/4/2	Idem. Ozone-depleting substances
MEPC 65/4/3	Idem. Report of the Correspondence Group. Submitted by Japan
MEPC 65/4/4	Idem. Revised proposal for the inclusion of the ro-ro cargo and ro-ro passenger ship types into the IMO energy efficiency regulatory framework. Submitted by Germany, Sweden, CESA and Inteferry
MEPC 65/4/5	Idem. Proposal for amendments to the 2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships for inclusion of the three correction factors for general cargo ships. Submitted by the Netherlands
MEPC 65/4/6	Idem. Energy efficiency for cruise passenger ships. Submitted by CLIA
MEPC 65/4/7	Idem. Final report of the Correspondence Group on assessment of technological developments to implement the Tier III NOx Emission Standards under Marpol Annex VI. Submitted by USA
MEPC 65/4/8	Idem. Tier III NOx emission standards and its impact on the superyacht sector. Submitted by ICOMIA and SYBAss
MEPC 65/4/9	Idem. Sulphur monitoring programme for fuel oils for 2012
MEPC 65/4/10	Idem. Clarification on requirements regarding EEDI calculation for ships with dual-fuel engines. Submitted by China
MEPC 65/4/11	Idem. Considerations on the interim guidelines for the calculation of the coefficient f_w , or for decrease in ship speed in a representative sea condition. Submitted by China
MEPC 65/4/12	Idem. EEDI calculation for LNG carriers with hybrid propulsion system. Submitted by the Republic of Korea
MEPC 65/4/13	Idem. Further development of EEDI reference line for LNG carriers. Submitted by Denmark, Japan, Liberia and SIGTTO
MEPC 65/4/14	Idem. Proposed amendment for the unified interpretations to MARPOL Annex VI. Submitted by IACS
MEPC 65/4/15	Idem. Consideration on ship speed verification method of EEDI. Submitted by the Republic of Korea
MEPC 65/4/16	Idem. Application of chapter 4 of MARPOL Annex VI/. Submitted by Norway
MEPC 65/4/17	Idem. Proposal for amendments to the 2012 Guidelines on the method of calculation of the attained Energy Efficiency Index (EEDI) for new ships for inclusion of a correction factor to account for shallow water restrictions. Submitted by Greece
MEPC 65/4/18	Idem. Comment of the method to include the ro-ro cargo and ro-ro passenger ship types into the IMO energy efficiency regulatory framework as proposed in MEPC 64/4/14 and MEPC 65/4/4. Submitted by Japan
MEPC 65/4/19	Idem. Proposal of the United States to enhance energy efficiency in international shipping. Submitted by the United States
MEPC 65/4/20	Idem. Mechanisms for VOC formation and estimates of global emissions. Submitted By Norway
MEPC 65/4/21	Idem. Proposals for improvements of the IMO framework on emissions of volatile organic compounds (VOC). Submitted by Norway

MEPC 65/4/22	Idem. Emissions of black carbon from shipping inside and outside the Arctic. Submitted by Norway
MEPC 65/4/23	Idem. Work progress on revision of ISO 15016:2002. Submitted by ISO
MEPC 65/4/24	Idem. Comments on document MEPC 65/4/6. Submitted by Germany
MEPC 65/4/25	Idem. Comments on the draft MEPC resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships. Submitted by the Russian Federation
MEPC 65/4/26	Idem. Comments on the work progress on revision of ISO 15016:2002 and implications on the 2012 guidelines for survey and certification of the EEDI. Submitted by Norway
MEPC 65/4/27	Idem. Comments on the report of the Correspondence Group on assessment of technological developments to implement the Tier III NOx emission standards under Marpol Annex VI. Submitted by the Russian Federation
MEPC 65/4/28	Idem. Comments on the report of the correspondence group related to the proposal on 2013 interim guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions. Submitted by Denmark and Japan
MEPC 65/4/29	Idem. Comments on the considerations on the interim guidelines for the calculation of the coefficient f_w for decrease in ship speed in a representative sea condition for trial use. Submitted by Japan
MEPC 65/4/30	Idem. Comments on document MEPC 65/4/19 on enhancing energy efficiency in international shipping. Submitted by Belgium, Canada, Denmark, Germany, Japan, Norway and the United Kingdom
MEPC 65/4/31	Idem. Establishment of an "EEDI database". Submitted by IACS
MEPC 65/4/32	Idem. Marpol Annex VI Tier III – Impact on less than 500 gross tonnage yachts. Submitted by the Marshall Islands, the Cook Islands, ICOMIA and SYBAss)
MEPC 65/4/33	Idem. Draft compromise MEPC resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships. Submitted by South Africa
MEPC 65/4/33/Corr.1	Idem. Amendments to draft compromise MEPC resolution on promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships. Submitted by South Africa
MEPC 65/4/34	Idem. Comments on possible approaches to monitoring, reporting and verifying fuel consumption and CO2 emissions from ships. Submitted by CSC
MEPC 65/4/35	Idem. Comments on document MEPC 65/4/19 (United States), which proposes a framework to measure ship energy efficiency. Submitted by CSC
MEPC 65/5	Reduction of GHG emissions from ships. Outcome of the United Nations Climate Change Conference held in Doha, Qatar from 26 November to 8 December 2012
MEPC 65/5/1	Idem. Technology take-up and its interaction with operational energy efficiency. Submitted by IMarEST
MEPC 65/5/2	Idem. Report of the expert Workshop on the update of GHG emissions estimate for international shipping (Update-EW)
MEPC 65/5/3	Idem. Comments on further impact assessment of the proposed Market-Based Measures for international shipping. Submitted by the Republic of Korea
MEPC 65/5/4	Idem. Shipping emissions in the context of a 2°C emission pathway. Submitted by CSC

MEPC 65/22	Report (Section 4 – Air pollution and energy efficiency; Section 5 – Reduction of GHG emissions from ships; Annex 4 – Resolution MEPC.229(65) – Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships; Annex 6 – Statements by the Delegations of China and the Russian Federation on the impact on the Arctic of emissions of black carbon; Annex 10 – Unified interpretation to regulation 13 of Marpol Annex VI on identical replacement engines; Annex 11 – Statements by the Delegations of the United States and observers from EUROMOT and ICOMIA on the review of the status of the technological developments to implement tier III NOx emission standards; Annex 14 - Resolution MEPC.231(65) – 2013 guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI); Annex 17 – Resolution MEPC.233(65) – 2013 guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI) for cruise passenger ships having non-conventional propulsion; Annex 18 – Resolution MEPC.234(65) – Amendments to 2012 guidelines on survey and certification of the Energy Efficiency Design Index (EEDI) (Resolution MEPC.214(65)), as amended; Annex 19 – Terms of reference for the update of the 209 IMO Study of greenhouse gas emissions estimate for international shipping)
MEPC 65/INF.3 & MEPC 65/INF.3/Rev.1	Air pollution and energy efficiency. Goal-based approach to fuel and CO ₂ emissions monitoring and reporting. Submitted by IMarEST.
MEPC 65/INF.6	Reduction of GHG emissions from ships. Results of the sixth Seoul International Maritime Forum. Submitted by the Republic of Korea
MEPC 65/INF.7	Idem. ITTC Recommended procedure 7.5-04-01-01.1 speed and power trials, Part 1, preparation and conduct. Submitted by ITTC
MEPC 65/INF.8	Air pollution and energy efficiency. Study: Clarifications on the proposed EEDI correction factor for differences in operational profile for general cargo ships as outlined in MEPC 64/4/18 and MEPC 64/INF.9. Submitted by the Netherlands
MEPC 65/INF.10	Air pollution and energy efficiency. Supplementary information to the final report of the Correspondence Group on assessment of technological developments to implement the Tier III NOx emission standards under MARPOL Annex VI. Submitted by USA
MEPC 65/INF.15	Idem. MARPOL Annex VI Tier III and its impact on the superyacht sector. Submitted by ICOMIA and SYBAss
MEPC 65/INF.17	Idem. Updated of the draft IMO model course on energy-efficient operation of ships
MEPC 65/INF.18	Reduction of GHG emissions from ships. World Trade Organization's views on document MEPC 64/5/4 submitted by India and Saudi Arabia
MEPC 65/INF.20	Air pollution and energy efficiency. Report of the Correspondence Group – Participants' comments on draft guidelines for determining minimum propulsion power to enable safe manoeuvring in adverse conditions. Submitted by Japan
MEPC 65/INF.21	Air pollution and energy efficiency. Draft alternative interim guidelines for the simulation for the coefficient f_w for decrease in ship speed in a representative sea condition. Submitted by China

66th Session (31 March – 4 April 2014)

MEPC 66/4	Air pollution and energy efficiency. Report of the Working Group on Air Pollution and Energy Efficiency (Part 2). Submitted by the Chairman of the Working Group
-----------	------------------------------------------------------------------------------------------------------------------------------------------------------------------

IMO PUBLICATIONS

[Click here for IMO Publications Catalogue](#)

Abbreviations : A : Arabic; C : Chinese; E : English; F : French; R : Russian; S: Spanish

All documents pertaining to the Conference and leading to the Conference are available in the Maritime Knowledge Centre (E/F/S)

CD Demos

Email us for a two-day trial of [IMO-Vega on the Web](#), [IMDG Code on the Web](#), [SOLAS on the Web](#) or [MARPOL on the Web](#).

Revised MARPOL Annex VI – Regulations for the prevention of air pollution from ships and NOx Technical Code. London, IMO, 2009 (IMO-IA664). Language(s): E, A, C, F, S

MARPOL 73/78 : Consolidated edition, 2011. London : IMO, 2011- (IMO-ID520E).

Bunkers sampling guidelines : Guidelines for the sampling of fuel oil for determination of compliance with Annex VI of MARPOL 73/78. London : IMO, 2005- : Laminated placard (IMO Doc. I665E)

The contribution of ship emissions to overall sulphur burdens in North Europe : A Concawe update : IMO/BCH Working Group, 28 February - 4 March 1994. London : IMO, 1995

2005 Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. (Amendments to MARPOL Annex VI and the NOx Technical Code) . (Resolution MEPC.132(53)). *Certified True Copy signed on 8 January 2007*. London, IMO, 2007. Language(s): ENG/FRE/SPA/RUS

Second IMO greenhouse gas study 2009. Executive Summary. London, IMO, 2009.

IMO's Technical Co-operation Programme responding to climate change. (Brochure). London, IMO, 2010

PLATTS, J. / INTERNATIONAL MARITIME ORGANIZATION (IMO) - IMO advisory mission on maritime security : Indonesia, 15 - 27 April 2007 : Consultant Mission Report : Final Report. London : IMO, 2007- (TCD/PER/F/07/C21; TC/0111-20-2010)

INTERNATIONAL MARITIME ORGANIZATION (IMO)

- [Main events in IMO's work on limitation and reduction of greenhouse gas emissions from international shipping](#).

In: United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009.

- [Latest GHG considerations within IMO](#). *In: United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009.*

- [IMO study on greenhouse gas emissions from ships 2008/8009](#). *In: United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009.*

UNFCCC

- Information on the work on greenhouse gas emissions from ships being carried out by the International Maritime Organization (IMO). Ad hoc Working Group on Further Commitment for Annex I Parties under the Kyoto Protocol (AWG-KP). First part of the 5th Session (31 March to 4 April 2008, Bangkok, Thailand)

- Progress within IMO on control of greenhouse gas emissions from ships engaged in international trade. Completion of IMO's GHG work plan – finalization of efficient and robust measures to enhance energy efficiency in shipping and to reduce emissions from ships. Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), intersessional informal consultations, Bonn, Germany, 10-14 August 2009

CONFERENCE PROCEEDINGS

BENGTSSON, S. / ANDERSSON, K. / FRIDELL, E. – [A comparative life cycle assessment of marine fuels: liquefied natural gas and three other fossil fuels](#). In: *Proceedings of the Institution of Mechanical Engineers, Part M: Journal of Engineering for the Marine Environment*. May 2011. pp 97- 111.

BROOKMAN, C.S. - Exhaust gas monitoring for the marine application. In: *Institute of Marine Engineers (IMARE) IMAS 96 : Shipping and the environment : Is compromise inevitable? - Conference (22-24 October 1996 : London)*. London : IMARE, 1996 Part I, pp 31-36

BUHAUG, Ø. – [Scale and nature of emissions from shipping – In: Seas at Risk Annual Conference, Brussels, 5 November 2008](#).

BURGEL, A.P. - The development of the air pollution annex in IMO. In: *Institute of Marine Engineers IMAS 96 - International Maritime and Shipping Conference (10th : 22-24 October 1996 : London)*. London : The Institute of Marine Engineers, 1996, pp 23-27

CHYSOSTOMOU, A.I. – [Potential approaches to mitigation in maritime transport : The work of the IMO's Marine Environment Protection Committee \(MEPC\)](#). In: *United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009*.

[C40 World Ports Climate Conference, Rotterdam 9](#) – 11 July 2008 (The C40 World Ports Climate Conference in Rotterdam was successful according to the organisation. The 55 ports present endorsed in the closing session the World Ports Climate Declaration, in which they actively commit themselves to reduce CO2 emissions and improve air quality. Under the umbrella of the International Association for Ports and Harbours (IAPH) now concrete measures will be prepared) [Declaration](#)

DITTRICH, E.C. - Air emissions : An operations progress report. In: *Standards for Materials, Products, Systems and Services. Committee F-25 on Shipbuilding (ASTM) Seminar papers - Seminar on protection of the marine environment - USA (19 May 1993 : Atlanta)*. Philadelphia : ASTM, 1993

DUTCH ENVIRONMENTAL MINISTRY / ARTHUR D. LITTLE LTD - Integrated approach for sulphur and sulphur dioxide limits in the European refining industry - Symposium (30 June 1992 : The Hague) , 1992-. Summary Note on Symposium Proceedings (IMO Doc. BCH 22/Inf.33)

FABER, J. – [Climate policy for shipping – Scope for market based instruments](#). In: *Seas at Risk Annual Conference, Brussels, 5 November 2008*.

FLEISCHER, F. - NOx reduction : A technical challenge for marine diesel engine manufacturers. In: *Institute of Marine Engineers (IMARE) IMAS 96 : Shipping and the environment : Is compromise inevitable? - Conference (22-24 October 1996 : London)*. London : IMARE, 1996 Part I, pp 37-43

GOTMALM, O.A. - Diesel exhaust control - reduction of marine emissions of NOx and SOx. In: *The Institute of Marine Engineers (IMarE) Conference Papers - Institute of Marine Engineers Conference on marine systems design and operation (29 September - 1 October 1993 : Hamburg)*. London : Marine Management (Holdings) Ltd, 1993, pp 221-230

IBC ASIA – Green shipping summit 2009. Singapore, 24-26 February 2009. Singapore, IBC Asia Pte Ltd. 2009.

THE INSTITUTE OF MARINE ENGINEERS (IMARE) - Marine pollution : Exhaust emissions from large diesel engines : Regulatory requirements - Technical problems and solutions - Seminar (8 November 1993 : London) . London : The Institute of Marine Engineers, 1993

INTERNATIONAL MARITIME ORGANIZATION (IMO)

- [Main events in IMO's work on limitation and reduction of greenhouse gas emissions from international shipping](#). In: *United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009*.

- [Latest GHG considerations within IMO](#). In: *United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009.*

- [IMO study on greenhouse gas emissions from ships 2008/8009](#). In: *United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009. Geneva, Unctad, 2009.*

JALKANEN, J-P. – Ship exhaust emissions. In: *Polish Register of Shipping, Safe shipping on the Baltic Sea, Symposium, (Szczecin, 23 April 2010), pp 71-74.*

KÅGESON, P.

– [Economic instruments for reducing emissions from sea transport](#). Brussels, European Federation for Transport and Environment, 1999 (Air Pollution and Climate Series 11) (ISBN 91-973691-1-X)

- [Reducing emissions from ships in the Baltic Sea area](#) : The feasibility of introducing a distance-related en-route charge. Brussels, European Federation for Transport and Environment, 2005.

KRAPP, R. Dr. – Reducing ship emissions and potential for fuel efficiency. In: *Lloyd's List Events, 5th Annual Green Ship Technology Conference : Current and future development in environmentally sustainable shipping, Rotterdam (The Netherlands), 11 – 12 March 2008. London, Lloyd's List Events, 2008*

KVAMSDAL, R. / FORDE, I.M. - Safe and efficient ships : Friendly to the environment. In: *Institute of Marine Engineering Safe and efficient ships : New approaches for design operation and maintenance - ICMES 96 : International Conference on Marine Engineering Systems (13-14 June 1996 : . London : The Institute of Marine Engineers, 1996, pp 11-17*

LLOYD'S LIST EVENTS

- Annual Conference : Green ship technology - Germany (3rd : 29-30 March 2006 : Hamburg) . London : Informa Maritime and Transport, 2006-

- Annual Conference : Green ship technology : Current and future development in environmentally sustainable shipping, (Rotterdam (The Netherlands), 11 – 12 March 2008) London, Lloyd's List Events, 2008

LLOYD'S MARITIME ACADEMY – [Reducing emissions to air from shipping](#). The definitive guide to the technical and legal driving forces. London, 22-24 April 2009. London, Lloyd's Maritime Academy, 2009.

MARTENS, O.M. - Solutions to hydrocarbon gas emissions from tankers. In: *The Institute of Marine Engineers (IMarE) Conference Papers - Institute of Marine Engineers Conference on marine systems design and operation (29 September - 1 October 1993 : Hamburg). London : Marine Management (Holdings) Ltd, 1993, pp 231-240*

McLERRAN, D.J. – US West Coast ports : Plans and technology to improve air quality. In: *Lloyd's List Events, 5th Annual Green Ship Technology Conference : Current and future development in environmentally sustainable shipping, Rotterdam (The Netherlands), 11 – 12 March 2008. London, Lloyd's List Events, 2008*

MAJOR, M. – [UNFCCC and IMO developments – and the response of the EU](#). In: *Seas at Risk Annual Conference, Brussels, 5 November 2008.*

MERKUS, H. – “Netherlands” policy making : New regulations on air emissions and the role of research institutes. In: *Lloyd's List Events, 5th Annual Green Ship Technology Conference : Current and future development in environmentally sustainable shipping, Rotterdam (The Netherlands), 11 – 12 March 2008. London, Lloyd's List Events, 2008*

McCOLLUM, D. / YANG, C. / SPERLING, D. – [Achieving 80% reduction in transport greenhouse gas emissions, using the USA as a case study](#). Paper presented at the International Transport Forum 2010 on 26-28 May in Leipzig, Germany.

OLSON, H. –

- Hydrocarbon emissions to the air when loading petrol and other volatile oil products into tankers. In: *Economic and Social Commission for Asia and the Pacific (ESCAP) Proceedings - IMO/ESCAP Seminar on environmentally sound port development and management (31 August - 4 September 1992 : Yokohama). New York : ESCAP, 1992, pp 149-158*

- Exhaust gas emissions to the air and noise from ships in inner harbours. In: Economic and Social Commission for Asia and the Pacific (ESCAP) Proceedings - IMO/ESCAP Seminar on environmentally sound port development and management (31 August - 4 September 1992 : Yokohama). New York : ESCAP, 1992, pp 159-166

PARO, D. - The low-emission ship. In: *Institute of Marine Engineers Quality of shipping in the year 2000 - IMAS 92 - Cyprus (11-13 November 1992 : Nicosia)*. London : Marine Management (Holdings) Ltd, 1992, pp 83-86

REYNOLDS, G. – Current and future regulations for the control of air pollution from ships. In: *Lloyd's List Events, 5th Annual Green Ship Technology Conference : Current and future development in environmentally sustainable shipping, Rotterdam (The Netherlands), 11 – 12 March 2008*. London, Lloyd's List Events, 2008

[Seas At Risk Climate & Oceans Conference, Brussels 5th November 2008](#)

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERING (SNAME) – [Climate change and ships : Increasing energy efficiency](#). February 16-17, 2010, Linthicum, Maryland, USA.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)
- [Maritime transport and the climate change challenge. Multi-year expert meeting on transport and trade facilitation](#). Geneva, 16-18 February 2009.

- [Ad Hoc Expert Meeting on Climate change: Impacts and adaption: A challenge for global ports](#). 29 – 30 September 2011

VAGSLID, E.S. – [Climate change: A challenge for IMO too!](#) In: *United Nations Conference on Trade and Development (UNCTAD) – Multi-year expert meeting on transport and trade facilitation; Maritime transport and the climate change challenge, Geneva, 16-18 February 2009*. Geneva, Unctad, 2009.

EUROPEAN UNION

[Climate Change](#)

[Environment – Air pollution - National emission ceilings](#).

Clean Air - <http://ec.europa.eu/environment/air/index.htm>

[The European Pollutant Emission Register \(EPER\)](#)

[EU Policy on Ship Emissions](#)

[Emission Trading System \(EU ETS\)](#)

[Annual European Community LRTAP Convention Emission Inventory 1990-2004](#). This report is the annual European Community LRTAP Convention Emission Inventory presenting the European Community air pollution data from the years 1990 to 2004. The report provides an overview of emission trends and data availability for EU-25; NFR Tables IV 1A are provided for EU-15 only. Due to data gaps, EU-15 totals were estimated for NO_x, CO, NMVOCs and SO_x covering 1990 to 2004, and NH₃ was estimated for certain years. Data reported for particulate matter (PM), persistent organic pollutants (POPs) and heavy metals (HM) are presented in Annex F.

[Application of the emissions trading directive by EU Member States. By European Environment Agency. \(EEA Technical Report No. 2/2006](#). Copenhagen, EEA, 2006 (ISBN 92-9167-816-3)

[Advice on the costs to fuel producers and price premia likely to result from a reduction in the level of sulphur in marine fuels marketed in the EU](#). Final Report. April 2002

CE DELFT/FABER, J./MARKOESKA, A./NELISSEN, D./DAVIDSON, M./ EYRING, V. et al – [Technical support for European action to reducing greenhouse gas emissions from international maritime transport](#). Report. Delft, CE, Delft, December 2009. Commissioned by the European Commission. (Publication number 09.7731.78) (ENV.C3/ATA/2008/0016)

Thematic Strategy on Air Pollution

- [The Communication on thematic strategy on air pollution and the Directive on “Ambient air quality and cleaner air for Europe”](#). Impact assessment. Brussels, Commission of the European Communities, 21 September 2005 (SEC (2005) 1133)
- [Council Conclusions \(7329/06\). Brussels March 2006.](#)

Service contract on ship emissions : Assignment, abatement and market-based instruments.

- [Task 1 – Preliminary assignment of ship emissions to European Countries. Final Report.](#) (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) August 2005

- [Task 2 – General Report. Final Report.](#) (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) August 2005.

- [Task 2A – Shoreside electricity. Final Report.](#) (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) August 2005

- [Task 2B – Nox Abatement. Final Report.](#) (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) August 2005.

- [Task 2C – SOx Abatement. Final Report.](#) (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) August 2005

[Economic instruments to reduce ship emissions in the European Union.](#) . (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) 26 September 2006.

[Evaluation of the feasibility of alternative market-based mechanisms to promote low-emission shipping in European Union sea areas.](#) Final Report (A report for the European Commission – Directorate-General Environment by NERA Economic Consulting). March 2004

[Advice on marine fuel. Potential price premium for 0.5%S marine fuel; Particular issues facing fuel procedures in different parts of the EU; and commentary on marine fuels market.](#) Framework contract for technical support in relation to the quality of fuels. Draft Final Report. (A report for the European Commission – Directorate General Environment by BeicipFranlab). October 2003.

[A Community strategy on air pollution from seagoing ships](#) – EUROPIA comments on DG ENV Discussion paper. January 2002.

Final report from Entec UK Ltd for the European Commission “Quantification of emissions from ships associated with ship movements between ports in the European Community.

Part 1 - [Quantification of emissions from ships associated with ship movements between ports in the European Community.](#) Final Report. (Report for European Commission – Directorate-General Environment by Entec UK Ltd.) July 2002.

Part 2 - [Chapter 2 – Quantification of ship emissions](#)

Part 3 – [Chapter 3 – Market survey of marine distillates](#)

[Measures to reduce emissions of VOCs during loading and unloading of ships in the EU.](#) A report produced for the European Commission, Directorate General Environment by Howard J. Rudd and Nikolas A. Hill, AEA Technology. August 2001. (AEAT/ENV/R/469 Issue 2)

European Union Strategy to Reduce Atmospheric Emissions from Seagoing Ships

- [Report on a European Union strategy to reduce atmospheric emissions from seagoing ships](#) (COM(2002) 595 – 2003/2064(INI) Final A5-0400/2003. 10 November 2003
- [Council Conclusions. \(16369/03\).](#) Brussels, 23 December 2003.
- [Communication from the Commission to the European Parliament and the Council](#) – A European Union strategy to reduce atmospheric emissions from seagoing ships (COM/2002/0595 Final, Volume I).
- [Communication from the Commission to the Council and the European Parliament](#) : Thematic strategy on air pollution. (COM(2005) 446 Final). Brussels, 21 September 2005.

[European Union strategy to reduce atmospheric emissions from seagoing ships](#) – Council conclusions. (16369/03). 23 December 2003.

[The influence of ship traffic emissions on the air concentrations of particulate matter](#). Preliminary estimate from EMEP/MSC/W under request of DG Environment. November 2001.

Study on the economic, legal, environmental and practical implications of a European Union system to reduce ship emissions of SO₂ and NO_x. Final Report for the European Commission. No. 3623. BMT Murray Fenton Edon Liddiard Vince Ltd. August 2000

[European Environment Agency \(EEA\) – Climate for a transport change](#). TERM 2007: Indicators tracking transport and environment in the European Union. Copenhagen, EEA, 2008. (EEA Report No. 1/2008) (ISBN 978-92-9167-117-5)

European Maritime Safety Agency (EMSA)

- [Air pollution](#)
- [Workshop on the revision of MARPOL Annex VI](#), Lisbon, 15-16 February 2007.
- [EEDI Test and trials for EMSA](#), 10-11 November 2009.
- II Workshop on Greenhouse emissions from ships & Workshop [Report](#). 15 October 2009.
- [Possible technical modifications on pre-2000 marine diesel engines for Nox reductions](#) – February 2008

DIRECTIVES, DECISIONS, REGULATIONS, RESOLUTIONS, PROPOSALS, COMMON POSITIONS AND RECOMMENDATIONS

[Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community](#). In: *Official Journal of the European Union*, L 140, pp. 63-87, 5 June 2009.

[Directive 2008/101/EC of the European parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community](#). : *Official Journal of the European Union*, L 8, pp 3-21, 13 January 2009.

[European Parliament resolution of 12 July 2007 on a future maritime policy for the European Union : A European vision for the oceans and seas \(2006/2299\(INI\)\)](#). Text adopted by Parliament on 12 July 2007. *Provisional edition*.

[European Parliament Resolution on the thematic strategy on air pollution \(2006/2060\(INI\)\)](#). 26 September 2006.

[Commission Recommendation of 8 May 2006 on the promotion of shore-side electricity for use by ships at berth on Community ports](#). In: *Official Journal of the European Union*, L 125, 12 May 2005, pp 38-42

[Directive 2005/33/EC of the European Parliament and of the Council of 6 July 2005 amending Directive 1999/32/EC](#). In: *Official Journal of the European Union*, L191, 22 July 2005, pp 59-69

[Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms](#). In: *Official Journal of the European Union*, L 338, pp 18-23, 13 November 2004.

[Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC](#). In: *Official Journal of the European Union*, L 275, pp 32-46, 25 October 2003.

[Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants](#). In: *Official Journal of the European Communities*, L 309, pp 22-30, 27 November 2001

Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC. In: *Official Journal of the European Communities* L121, 11 May 1999, pp 13-18.

Common Position (EC) No. 57/98 adopted by the Council on 24 September 1998 with a view to adoption of Council Directive 98/.../EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxide of nitrogen, particulate matter and lead in ambient air (98/C 360/04). In: *Official Journal of the European Communities* Vol. 41/No, C 360, 28 Nov 1998, pp 99-122

Common Position (EC) No. 50/98 adopted by the Council on 16 June 1998 with a view to adopting Council Decision 98/ .../EC, of ... amending Decision 93/389/EEC for a monitoring mechanism of Community CO₂ and other

greenhouse gas emissions (98/C 333/03). In: *Official Journal of the European Communities Vol. 41/No. C 333, 30 Oct 1998, pp 38-45*

Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery. In: *Official Journal of the European Communities Vol. 41/No. L 59, 27 Feb 1998*

Common position (EC) No. 40/97 adopted by the Council on 7 October 1997 with a view to adopting Directive 97/.../EC of the European Parliament and of the Council relating to measures to be taken against air pollution by emissions from motor vehicles and amending Council Directive 70/220/EEC. In: *Official Journal of the European Communities Vol. 40/C 351, 19 Nov 1997, pp 13-67*

Directive 96/1/EC of the European Parliament and of the Council of 22 January 1996 amending Directive 88/77/EEC on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from diesel engines for use in vehicles. In: *Official Journal of the European Communities Vol. 39/No. L 40, 17 Feb 1996, pp 1-9*

Council Directive 93/12/EEC of 23 March 1993 relating to the sulphur content of certain liquid fuels. In: *Official Journal of the European Communities No. L 74, 27 Mar 1993, pp 81-83.*

Council Directive of 3 December 1987 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous pollutants from diesel engines for use in vehicles (88/77/EEC). In: *Official Journal of the European Communities No. L 36, 9 Feb 1988, pp 33-6*

[Directive of the European Parliament and of the Council on ambient air quality and cleaner air for Europe. Brussels, European Parliament, March 2008.](#) (2005/0183 (COD)); (PE-CONS 3696/07)

UNITED NATIONS

[UN Convention Framework on Climate Change \(UNFCCC\)](#). Done in New York, 9 May 1992. [Kyoto Protocol to the United Nations framework convention on climate change](#) - Japan (1-10 December 1997 : Kyoto) . New York : UN, 1997- (FCCC/CP/1997/L.7/Add.1; 1997. Language(s): ENG, FRE, SPA, RUS.

[UN Convention Framework on Climate Change \(UNFCCC\). United Nations Climate Change Conference](#) - Bali, 3 - 14 December 2007.

[Gateway to the UN System's Work on Climate Change.](#)

UNFCCC CLIMATE CHANGE SECRETARIAT / UNITED NATION ENVIRONMENT PROGRAMME (IUC) (UNEP)
- UNFCCC Convention on Climate Change. Bonn, Climate Change Secretariat, 2007. (UNEP/IUC/2007)

- UNFCCC The Kyoto Protocol to the Convention on Climate Change. Bonn, Climate Change Secretariat, 2007. (UNEP/IUC/2007)

- [UNFCCC : report of the Conference of the Parties on its 13th Session, held in Bali from 3 to 15 December 2007. Addendum : Part 2 action taken by the Conference of the Parties at its 13th Session.](#) (FCCC/CP/2007/Add.1

[Convention on Long-Range Transboundary Air Pollution \(LRTAP\)](#) . Geneva, 13 November 1979.

- [The 1985 Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent](#)
- [The 1988 Protocol concerning the Control of Nitrogen Oxides or their Transboundary Fluxes](#)
- [The 1991 Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes](#)
- [The 1994 Protocol on further reduction of sulphur emissions](#)
- [Other Protocols to the Convention](#)

[COP17/CMP7](#) – The 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change, Durban, South Africa, 28 November – 9 December 2011.

[Emissions resulting from Fuel used for International Transport: Aviation and Marine "Bunker Fuels"](#).

Airborne sulphur pollution : Effects and control. New York, UN, 1984 (Airborne Pollution Studies No. 1)

Committee for Development Policy - The international development agenda and the climate change challenge. New York : UN, 2007- (ISBN : 978-92-1-104571-0)

[Report of the Secretary-General's High-Level Advisory Group on climate change financing](#). 5 November 2010

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

- Controlling carbon dioxide emissions : The tradable permit system. Geneva : UNCTAD, 1995 (ISBN : 92-1-112373-9)

- Combating global warming : Possible rules, regulations and administrative arrangements for a global market in CO2 emission entitlements. New York : UN, 1994- (UNCTAD/GID/8) (ISBN : 92-1-112372-0)

- [Maritime transport and the climate change challenge. Multy-year expert meeting on transport and trade facilitation](#). Geneva, 16-18 February 2009.

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) / SUSTAINABLE DEVELOPMENT INTERNATIONAL - Climate action. Nairobi/London : UNEP/Sustainable Development International, 2007 (ISBN : 978-0-9554408-5-4)

UNITED NATION ENVIRONMENT PROGRAMME (UNEP)

– [Bridging the emissions gap. A UNEP synthesis report](#). 2011. (ISBN 978-92-807-3229-0)

- [Moving towards a climate neutral UN : The UN system/s footprint and efforts to reduce it](#). Nairobi : UNEP, 2010 (ISBN 978-92-807-3150-7)

WORLD HEALTH ORGANIZATION (WHO). International Programme on Chemical Safety (IPCS) - Diesel fuel and exhaust emissions. Geneva : WHO, 1996- (Environmental Health Criteria 171) (ISBN : 92-4-157171-3)

WORLD METEOROLOGICAL ORGANIZATION (WMO)

– The state of Polar research. A statement from the International Council for Science / World Meteorological Organization Joint Committee for the International Polar Year 2007-2008. Geneva, WMO, 2009

- State of the climate in 2006. Geneva, WMO, 2008. (ISBN 92-63-11020-4)

OTHER PUBLICATIONS

AIR POLLUTION ABATEMENT REVIEW GROUP (APARG) – UK - Report on the abatement of volatile organic compounds (VOCs) from stationary sources 1995 (UK) : APARG, 1995-

ALEXANDERSSON, A. et al – Exhaust gas emissions from sea transportation. TFB Report 1993:1. Göteborg, MariTerm AB, 1993 (IMO Doc. MEPC 34/Inf.20)

ANINK, D. / KRIKKE, M. / INTERNATIONAL MARITIME ORGANIZATION (IMO) / CENTER FOR MARITIME TECHNOLOGY AND INNOVATION (CMIT) - Further improvement of guidelines : Study on the analysis of the effect of the new EEDI requirements on Dutch build and flagged ships / Submitted by the Netherlands. London : IMO, 2011 (IMO Doc. EE-WG 2/INF.2)

ARTHUR D. LITTLE LTD - Prevention of air pollution from ships : Feasibility of monitoring of sulphur content of residual fuels / Submitted by the Netherlands and the United Kingdom. London : Arthur D. Little Ltd, 1997- (IMO Doc. MEPC 39/Inf.18)

ASARIOTIS, R. / BENAMARA, H. (Eds) – Maritime transport and the climate change challenge. Abingdon,(UK) Routledge, 2012. (ISBN 978-1-84971-238-5)

ASSOCIATION OF EUROPEAN MANUFACTURERS OF INTERNAL COMBUSTION ENGINES (EUROMOT) - The environmental burden arising from small engines : EUROMOT Working Group - Exhaust emissions. Frankfurt : Euromot, 1994- (Euromot Publication 94/01)

BALTIC AND INTERNATIONAL MARITIME COUNCIL (BIMCO)

- [Quality coastal state and air emissions discussed with EMSA](#).

- [Applying market based instruments to control the emissions of greenhouse gases by the shipping industry](#). 2010

- [Sticking up for EEDI](#). Shipowners must back not attack the index, says BIMCO. BIMCO has urged shipowners to support and make use of the energy efficiency design index, the tool that will become mandatory next year to reduce shipping's CO2 emissions. *BIMCO News*, 23 March 2012

- Step-by-step SEEMP Manual : A simple and practical guide and templates for developing a Ship Energy Efficiency Management Plan that can deliver real benefits.(+ CD-ROM). Windsor (Berkshire) : Fathom Eco-Consultants Ltd, 2012

BASTENHOF, D. - Emissions polluants dans les gaz d'échappement de moteurs diesel marins et leur réduction : ATMA Session, Paris, May 24-27, 1993, Language(s): FRE.

BAZARI, Z. / LONGVA, T. / INTERNATIONAL MARITIME ORGANIZATION (IMO) - Air pollution and energy efficiency : Estimated CO2 emissions reduction from introduction of mandatory technical and operational energy efficiency measures for ships. Executive summary. London : IMO, 2011 (IMO Doc. MEPC 63/4/1)

BAZARI, Z. / LONGVA, T. – Assessment of IMO mandated energy efficiency measures for international shipping. Estimated CO2 emissions reduction from introduction of mandatory technical and operational energy efficiency measures for ships. Project Final Report. London, IMO, 2011 (MEPC 63/INF.2).

BENGTSSON, S. - [Life cycle assessment of present and future fuels](#). Gothenburg : Chalmers University of Technology, 2011

BLUEWATER NETWORK – A stacked deck: Air pollution from large ships. San Francisco (CA), Bluewater Network, e17 July 2000

BMT MURRAY FENTON EDON LIDDIARD VINCE LTD - Study on the economic, legal, environmental and practical implications of a European Union system to reduce ship emissions of SO2 and NOx : Final Report. Teddington (Middlesex) : BMT Murray Fenton Edon Liddiard Vince Ltd, 2000.

BODANSKY, D./O'CONNOR, S.D./DIRINGER, E. – [The evolution of multilateral regimes: Implications for climate change](#). Arlington (VA), Pew Center on Global Climate Change, 2010.

BRUCKNER-MENCHELLI, N. – The war against black carbon. *In: Sustainable Shipping Magazine, March/April 2011, pp 12-13*

CALIFORNIA AIR RESOURCES BOARD – [Shore power : Emissions reducing alternative for ships docked in port](#). 9 November 2004.

CANNON, J.S.

- [Container ports and air pollution](#). Boulder (Colorado), Energy Future, Inc, 2009.

– [U.S. container ports and air pollution](#) : A perfect storm. Boulder (Colorado), Energy Future, Inc, 2008. ()

CARLTON, J.S. et al / LLOYD'S REGISTER TECHNICAL ASSOCIATION - Exhaust emissions from marine diesel engines. London : Lloyd's Register of Shipping, 1995- (Peper No. 2/Session 1994-1995)

CE DELFT/FABER, J./MARKOESKA, A./NELISSEN, D./DAVIDSON, M./ EYRING, V. et al – [Technical support for European action to reducing greenhouse gas emissions from international maritime transport](#). Report. Delft, CE, Delft, December 2009. Commissioned by the European Commission. (Publication number 09.7731.78) (ENV.C3/ATA/2008/0016)

CE DELFT / GERMANISCHER LLOYD (GL)/ MARINTEK / DET NORSKE VERITAS (DNV) – [Greenhouse gas emissions for shipping and implementation guidance for the marine fuel sulphur directive](#). Delft, CE Delft, 2007.

CENTER FOR INTERNATIONAL CLIMATE AND ENVIRONMENTAL RESEARCH (CICERO)

- Climate regulation of ships. Blindern (Norway), CICERO, 2007. (CICERO Report 2007:07) (Attached to IMO Doc. MEPC 57/INF.21) (<http://www.cicero.uio.no>)
- Large-scale carbon capture and storage for coal-fired power : Effect on global carbon dioxide emissions.. Blindern (Norway), CICERO, 2007. (CICERO Report 2007:06) (<http://www.cicero.uio.no>)
- CHAMBER OF SHIPPING (UK) – [A global cap-and-trade system to reduce carbon emissions from international shipping](#). London, Chamber of Shipping, 2009
- CHAMBER OF SHIPPING OF BRITISH COLUMBIA (Canada)
– [2005 – 2006 BC Ocean-going vessel emissions inventory. Final Draft](#), January 25, 2007. Vancouver, B.C., The Chamber of Shipping, 2007.
- [Air emissions from ships in BC \(British Columbia\)](#). Marine activities and air emissions. Fact Sheet, Volume 1, April 04, 2007.
- CHRYSOSTOMOU, A. / VAGSLID, E.S. - Climate change : A challenge for IMO too. *In: Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge. Abingdon : Earthscan, 2012, pp 75-111*
- CRIST, P. - Mitigating greenhouse gas emissions from shipping : Potential, cost and strategies. *In: Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge. Abingdon : Earthscan, 2012, pp 165-206*
- COMMITTEE ON CLIMATE CHANGE (UK) – [Review of UK shipping emissions](#). November 2011.
- CONCEPTION, E. / LURZ, J. – [Historical sulphur dioxide emissions 1850-2000: Methods and results](#). Pacific Northwest Laboratory, January 2004.
- CONOSHIP INTERNATIONAL \ (CMTI) - [A study on a fairer inclusion of small general cargo ships and small containerships within the EEDI regulatory framework](#). Groningen : Conoship/MARIN/CMTI, 2012 (Also attached to IMO Doc. MEPC 64/INF.9)
- CONSILIENCE ENERGY ADVISORY GROUP (CEAG) – Climate change and emission trading . What every business needs to know. 3rd ed. London, CEAG, 2009. (ISBN 978-0-95508-2-1)
- CORBETT, J.J. / WINEBRAKE, J. (et al) - International maritime shipping : Environmental impacts of increased activity levels. *In: Organisation For Economic Co-operation and Development (OECD) Globalisation, transport and the environment. Paris : OCED, 2010 Chapter 6, pp 161-184*
- CORBETT, J.J. / LACK, D.A. / WINEBRAKE, J.J./ HARDER, S. / SILBERMAN, J.A./ GOLD, M. – [Arctic shipping emissions inventories and future scenarios](#). *In: Atmospheric Chemistry and Physics, Vol. 10/ No. 9, 14 October 2010, pp 9689-9704.*
- CORBETT, J.J. / WANG, C. / WINEBRAKE, J.J. – The effectiveness and costs of speed reductions on emissions from international shipping. *In: Transportation Research Part D: Transportation and Environment, Volume 14, Issue 8, December 2009, pp 593-598*
- CORBETT, J.J. / WANG, C. / WINEBRAKE, J.J. / GREEN, E. – [Allocation and forecasting of global ship emissions](#). Boston, (MA), Clean Air Task Force, 2007.
- CORBETT, J.J. / WANG, C. / WINEBRAKE, J.J. / GREEN, E./KASIBHATLA, P./ EYRING, V./ LAUER, A. – [Mortality from ship emissions: A global assessment](#). American Chemical Society, 2007.
- CORBETT, J.J. / WANG, C. / WINEBRAKE, J.J. / GREEN, E./ EYRING, V./ LAUER, A. – Mitigating health impacts of ship pollution through low sulphur fuel options: Initial comparison of scenarios. Pittsford, NY, Energy Environmental Research Associates, 23 January 2008. (<http://www.energyandenvironmental.com>) (Attached to the IMO Doc. MEPC 57/4/15)
- CORBETT, J.J. / WINEBRAKE, J.J./ COMER, B. / GREEN, E. – Energy and GHG emissions savings analysis of fluoropolymer fowl release hull coating. Pittsford (NY), Energy and Environmental Research Associates, LLC, 17 February 2011.

- CORBETT, J.J. / WINEBRAKE, J.J. / GREEN, E. – [An assessment of technologies for reducing regional short-lived climate forces emitted by ships with implications for Arctic shipping](#). In: *Carbon Management*, Vol. 1/ No. 2, pp 207-225, December 2010
- DARA (INTERNATIONAL ORGANIZATION) - Climate vulnerability monitor 2010 : The state of the climate crisis. Madrid : Dara, 2010 (ISBN 978-84-614-5713-7)
- DAVIDSON, M.D. / FABER, J. - Market-based instruments to reduce greenhouse gas emissions from ships : Taxonomy and assessment. In: *Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge*. Abingdon : Earthscan, 2012, pp 148-164
- DC BUREAU – [Special Investigation : No safe harbor : The shipping industry's pollution problem. Part I – Low-hanging fruit](#). August 2009; Part II – A lack of authority, 1 September 2009; Part III – Off the hook, 3 September 2009.
- DELTAMARIN LTD. - [Study on tests and trials of the energy efficiency design index as developed by the IMO](#) : Applicability and refinement of the EEDI for RoRo, RoPaz vessels and specialized ships. Raisio (Finland) : Deltamarin Ltd, 2011
- DEN BOER, E. / OTTEN, M. / VAN ESSEN, H. - [STREAM International freight 2011](#) : Comparison of various transport modes on a EU scale with the STREAM database. Delft (The Netherlands) : CE Delft, 2011
- DET NORSKE METEOROLOGISKE INSTITUTT (DNMI) / HELSINKI COMMISSION (HELCOM)
- Emission from ship traffic in the Baltic sea : Distribution in the 50 X50 KM EMEP grid. Oslo : DNMI : 2000 (IMO DOC. MEPC/45/INF.7/Add.1)
- DET NORSKE VERITAS (DNV)
– MARPOL 73/78 Annex VI : Regulations for the prevention of air pollution from ships. Technical and operations implications. Høvic, DNV, 2009.
- DNV triple-E : [Environmental and energy efficiency rating scheme](#). In: *Maritime Magazine*, No. 1, 1 June 2009, pp 13-15
- [Environmental challenges](#) : In: *Maritime Magazine*, No. 1, 1 June 2009.
 - [Pathways to low carbon shipping](#). Abatement potential towards 2030. 15 december 2009.
 - [Assessment of measure to reduce future CO2 emissions from shipping](#). (Research and Innovation, Position Paper 05/2010).
- DHADWAL, R. - Reduction of cargo vapour (volatile organic compounds) emissions from crude oil tankers : A dissertation submitted to Liverpool John Moores University (England), 2003-
- DRYDEN, S. - North American emission control; review, response, and responsibility : A consulting project for sustainable shipping, 2011
- ENTEC UK LTD – [Study to review assessments undertaken of the revised MARPOL Annex VI regulations. Final report](#). July 2010. London, Entec, July 2010
- ENVIRONMENT CANADA
- Estimates of emissions from pleasure craft in Canada. Ottawa : Minister of Supply and Services Canada, 1994- (Report EPS 5/AP/5). Language(s): ENG, FRE.
- [Marine vessel exhaust emissions – Phase II](#) (1998-1999). (TP 13445E). May 1999.
 - [Marine vessel exhaust emissions program: A study of the effects of multiple emissions reduction technologies on the exhaust emissions of marine diesel engines](#). April 2003.
- Mobile Sources Emissions Division - Emissions testing of marine vessels : A joint Environment Canada - Transport Canada program. Montreal : Transport Canada, 1993
- ENVIRONMENTAL DEFENSE FUND (EDF) – [Floating smokestacks : A call for action to clean up marine shipping pollution](#). New York, EDF, 2008.

ENVIRONMENTAL ENGINEERING DEPARTMENT / HELSINKI COMMISSION (HELCOM) - Marine Exhaust Emission Quantification Study - Baltic Sea / Submitted by the Baltic Marine Environment Protection Commission (HELCOM) - Final Report : Environmental Engineering Department, 2000- : Annex (IMO DOC. MEPC 45/INF.7; Report No 98/EE/7036)

EUROPEAN ENVIRONMENT AGENCY (EEA) – [Annual European Community LRTAP Convention Emission Inventory 1990-2004](#).

EUROPEAN ENVIRONMENTAL BUREAU (EEB) / EUROPEAN FEDERATION FOR TRANSPORT AND ENVIRONMENT (T&E) / SEAS AT RISK (SAR) / SWEDISH NGO SECRETARIAT ON ACID RAIN
[Air pollution from ships](#). November 2004.

EUROPEAN FEDERATION FOR TRANSPORT AND ENVIRONMENT (T&E) - [Green group call for cleaner ship fuels and engines](#). 13 November 2006

EUROPEAN SUSTAINABLE INVESTMENT FORUM (EUROSIF) – [Shipping sector report](#). February 2009.

EYRING, V. (Dr.) / CORBETT, J.J. (Dr.) - [Comparison fuel consumption, CO2 and other emissions from international shipping and aircraft : A summary of recent research findings by Veronika Eyring and James J Corbett](#). Oberpfaffenhofen-Wessling (Germany) : Institute of Atmospheric Physics, 2007-

FABER, J. / RENSMAN, K. – Left on the high seas ; Global climate policies for international transport. October 2008 update. Delft, CE Delft, 2008. (08.7748.37)

FABER, J. / BOON, B. / BERK, M. / den ELZEN, M. / OLIVIER, J. / LEE, D. – [Climate change scientific assessment and policy analysis. Aviation and maritime transport in a post 2012 climate policy regime](#). (Report 500102 008). Bilthoven, Netherlands Environmental Assessment Agency, 2007.

FOURNIER, A. – [Controlling air emissions from marine vessels : Problems and opportunities](#). University of California Santa Barbara, February 2006.

FRIENDS OF THE EARTH INTERNATIONAL

- Prevention of air pollution from ships, including fuel oil quality / Submitted by Friends of the Earth to the Marine Environment Protection Committee, 29th session, 1990. London : IMO, 1990 (IMO Doc. MEPC 29/INF.9)

- [Letter to Barbara Boxer \(USA\) with regards to the Marine Vessels Emissions Reduction Act of 2007](#). July 3rd, 2007.

- [Support for marine vessels emissions reduction Act of 2007](#).

GALBRAITH, V./ CURRY, L. / LOH, C. – Green harbours : Hong Kong and Shenzhen : reducing marine and port-related emissions. Hong Kong, Civic Exchange, 2008. <http://www.civi-exchange.org>

GERMANISCHER LLOYD

- Correspondence Group on technical requirements for new engines to deal with NOx : Report of the Correspondence Group. Hamburg : Germanischer Lloyd, 1993 (IMO Doc. BCH 23/7/3)

- Summary of the final report "Pollutant emissions in shipping traffic". Hamburg : Germanischer Lloyd, 1995 (IMO Doc. MEPC 37/Inf.13)

GILBERT, P. / BOWEN, A. / STARKEY, R. – [Shipping and climate change : Scope for unilateral action](#). The University of Manchester, August 2010.

HAMMINGH, P./ABEN, J.M.M./ BLOM, W.F./JIMMINK. B.A./de VRIES, W.J./ VISSER,M. – [Effectiveness of international emission control measures for North Sea shipping on Dutch air quality](#). Bilthoven, Netherlands Environmental Assessment Agency, 2007.

HARROULD-KOLIEB, E. – [Shipping impacts on climate : A source with solutions](#). Washington, D.C., Oceana, July 2008 .

HERBERT ENGINEERING CORPORATION – [Carbon footprint study for the Asia to North America intermodal trade](#). Port of Seattle, (WA), Herbert Engineering Corp., June 2011

HINCHLIFFE, P. - International shipping and climate change. *In: Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge. Abingdon : Earthscan, 2012, pp 209-213*

- HOLMVANG, P. - - [Environmental performance and the future](#). In: *Maritime Magazine*, No. 1, 1 June 2009, pp 10-11.
- HOLMVANG, P. / BAKKE, J. - MARPOL Annex VI and upcoming EU sulphur regulations : Implications for the shipping community. In: *The Baltic and International Maritime Council (BIMCO) BIMCO Review 2005*. London : Book Production Consultants Plc, 2005, pp 129-132
- HOUSE OF COMMONS (UK) – Environmental Audit Committee
 – [Reducing CO2 and other emissions from shipping](#) : Fourth report of Session 2008-2009. London, Stationery Office, 2009.
- [Reducing CO2 and other emissions from shipping](#): Government response to the Committee's 4th Report of Session 208-2009. Sixth Special report of Session 2008-2009. (HC 1015). London, The Stationery Office, Ltd., 23 October 2009.
- [Sulphur emissions by ships – Sixteenth Report of Session 2010-12 – Vol. I – Report, together with formal minutes, oral and written evidence](#). London, The Stationery Office, 9 march 2012.
- [Sulphur emissions by ships – Sixteenth Report of Session 2010-12 – Vol. II – Additional written evidence](#). London, The Stationery Office, 9 march 2012.(ISBN 978-0-215-04283-5)
- HUMMINGH, P. / ABEN, J.M.M., BLOM, W.F. / de VRIES, W.J. / VISSER, M. – [Effectiveness of international emission control measures for North Sea shipping on Dutch air quality](#). Bilthoven, Netherlands Environmental Assessment Agency, 2007 (MNP Report 500092004/2007)
- INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS (INTERTANKO) - A guide to bunkering of ships for the purposes of Annex VI to MARPOL. Oslo : Intertanko, 2004
- INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS (IAPH)
 - [Resolution on clean air programs for ports adopted on May 4th 2007 at the 25th IAPH World Ports Conference in Houston, USA](#).
- The World Ports Climate Initiative launched by IAPH. Media Release, November 28th, 2008. <http://www.iaphworldports.org>
- [IAPH tool box for port clean air programs](#).
- INTERNATIONAL CARGO HANDLING CO-ORDINATION ASSOCIATION (ICHCA) - Fumes in ships holds. London : ICHCA, 1998 (ISBN : 1-85330-086-1)
- INTERNATIONAL CHAMBER OF SHIPPING (ICS)
 – UN Climate Change Conference – Shipowners regret lack of direction on treatment of international shipping. Statement release on 21 December 2009. <http://www.marisec.org/news/pressrel.htm#21 December 2009>
- [Shipping, world trade and the reduction of CO2 emissions film](#). (ICS has produced a short film – Shipping, World Trade and the Reduction of CO₂ Emissions – to explain what the shipping industry is doing to reduce CO₂ emissions. The film can be used with audiences of policy makers, and as a tool at exhibitions and talks.)
- [Shipping, world trade and the reduction of CO2 emissions: International Chamber of Shipping representing the global shipping industry : COP 17, Durban](#). 2011
- [Shipping CO2 reduction measures – Every vote counts](#). Press Release, 6 July 2011.
- [Shipping, world trade and the reduction of CO2 emissions](#). 2010 Update.
- [ICS position on greenhouse gas market based measures](#) – 30 May 2011.
- INTERNATIONAL CHAMBER OF SHIPPING (ICS) / INTERNATIONAL SHIPPING FEDERATION (ISF) – [Reducing shipping's CO2 emissions](#). In: *ICS/ISF Annual Review 2008*, pp. 4-7.
- INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION (ICCT) – [Air pollution and greenhouse gas emissions from ocean-going ships: Impacts, mitigation options and opportunities for managing growth](#). Report. 2007

INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS (IIASA)

Analysis of policy measures to reduce ship emissions in the context of the revision of the national emissions ceilings directive.

- [Interim Report](#) . October 2006
- [Appendices](#)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

- Reciprocating internal combustion engines : Exhaust emission measurement : Part 1 - Test-bed measurement of gaseous and particulate exhaust emissions. 2nd ed. Geneva : ISO, 2006 (ISO 8178-1). Language(s): ENG, FRE.

- Stationary source emissions : Manual determination of mass concentration of particulate matter. 2nd ed. Geneva, ISO, 2003. (ISO 9096) Language(s): ENG, FRE.

INTERNATIONAL TRANSPORT FORUM / ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD) – [Reducing transport greenhouse gas emissions : Trends and data 2010](#).

IVL SWEDISH ENVIRONMENTAL RESEARCH INSTITUTE – [Greenhouse gas emissions trading for the transport sector](#). Stockholm, IVL Swedish Environmental Research Institute, 2006.

JOURNAL OF OCEAN TECHNOLOGY – [Greener ships : Efficiency, emissions, coatings and waste. Special Issue for ocean innovation 2009](#). Volume IV, No. III, 2009.

KÅGESON, P. (Dr.)

- [Assessing the MBM EG's report](#). Paper submitted to the IMO MEPC 61st Meeting on 29 September 2010

- [Reducing emissions from ships in the Baltic Sea area. The feasibility of introducing a distance-related en-route charge](#). Brussels, European Federation for Transport and Environment (T&E), 2005

KOESLER, S. - [Capped steam ahead : A case study among ship operators on a maritime ETS](#). Mannhei : Centre for European Economic Research, 2012

KRISTENSEN, H.O. / INTERNATIONAL MARITIME ORGANIZATION (IMO)

- EEDI requirements for large tankers and bulk carriers : Analysis of the development in EEDI on large tankers and bulk carriers / Submitted by Denmark. London : IMO, 2011 (IMO Doc. EE-WG 2/3)

- Energy efficiency operational indicator : Information on a study describing a method for using the energy efficiency operational indicator (EEOI) in ro-ro passenger ships / Submitted by Denmark. London : IMO, 2011 (IMO Doc. EE-WG 2/INF.4)

LAUER, P. – [Ship emissions in ports](#). Augsburg, Man Diesel SE, Germany, 2009.

LIDDY, J. - Shipping, air pollution and bunker fuels. *In: Sterling Publications Shipbuilding Technology International '92*. London : Sterling Publication Ltd, 1992, pp 175-177

LLOYD'S LIST – Future of shipping : Shipping and the environment. Why CO2 is going to change the world and shipping with it. (Supplement magazine to the Lloyd's List Daily Newspaper - December 2009). London, Lloyd's of London, 2009.

LLOYD'S REGISTER OF SHIPPING

- Air quality impact evaluation / Marine Exhaust Emissions Research Programme. London : Lloyd's Register of Shipping, 1993 (IMO Doc. BCH 23/Inf.3)

- Marine exhaust emissions research programme : Phase II – Transient Emission Trials. London : Lloyd's Register of Shipping, 1993

- Marine exhaust emissions research programme : Overview Report. London : Lloyd's Register of Shipping, 1995. (IMO Doc. MEPC 37/Inf.23)

- [Marine exhaust emission quantification study – Mediterranean Sea](#). Issue date: February 2001. (99/EE/7044)

- Steady state operation - Slow speed addendum / Marine Exhaust Emissions Research Programme . London : Lloyd's Register of Shipping, 1991

- Transient emission trials / Marine Exhaust Emissions Research Programme. London : Lloyd's Register of Shipping, 1993. (IMO Doc. BCH 23/Inf.2)

MAGNUSSON, M. – NO_x abatement technique for marine applications : Improved SCR systems. Gothenburg, Department of Shipping and Marine echnolgy, Chalmers University of Technology, 2011

MARINE CLIMATE CHANGE IMPACTS PARTNERSHIP (MCCIP) – [Marine climate change : Annual report 2007 – 2008](#). Lowestoft, MCCIP, 2008

MARINTEK (Norwegian Marine Technology Research Institute) <http://www.marintek.sintef.no>
– Exhaust gas emission from international marine transport : Global distribution of NO_x and SO_x : Cost of NO_x control. Trondheim, Marintek, Norway, 1990 (Report OR 222955.00.01.90)

MARINTEK (Norwegian Marine Technology Research Institute) / ECON (ECON is a leading Nordic consulting firm in the field of economic analysis) / CARNEGIE MELLON UNIVERSITY/ DET NORSKE VERITAS (DNV) – [Study of greenhouse gas emissions from ships : Final Report to the International Maritime Organization](#). (Attached to the IMO Document MEPC 45/8). Issue No. 2, 31 March 2000.

MARITIME AND COASTGUARD AGENCY (MCA)
– [Marpol 73/78: Annex VI – Control of emissions of nitrogen oxides \(NO_x\) from marine diesel engines](#). Southampton, MCA, 2000 (MGN 142 (M+F)).

- Survey and certification requirements for the Merchant Shipping (Prevention of air pollution ftok ships) regulations 2008. Southampton, MCA, 2008 (MGN 381 (M+F)).

MARULS WP3 – Washwater criteria for seawater exhaust gas-SO_x scrubbers. Report. Trondheim, Norwegian Marine Technology Research Institute, 2006 (IMO Doc. MEPC 56/INF.5)

- Study of Greenhouse Gas Emissions from ships: Final report to the International Maritime Organization. Issue No 2-31 March 2000 / Submitted by the IMO Secretariat. Norway : Norwegian Marine Technology Research Institute, 2000 (IMO DOC. MEPC 45/8)

- Second IMO GHG Study 2009. Presented to MEPC 59, July 13 2009.

MARITERM AB - Exhaust gas emissions from sea transportation. Göteborg : MariTerm AB, 1993 (TFB report 1993:1; IMO Doc. MEPC 34/Inf.20)

McCARTHY, J.E. – [Air pollution from ships: MARPOL Annex VI and other control options](#). CRS Report for Congress. Washington, D.C., CRS, 2008.

MEECH, R. - Supporting IMO's air pollution initiative. *In: Baltic and International Maritime Council (BIMCO) BIMCO Review 1994. London : BilMCO, 1994, pp 293-297*

MINISTRY OF TRANSPORT AND PUBLIC WORKS - The Netherlands - Bunker oil desulphurisation : A survey of the technical, financial and market aspects (The Netherlands) : Ministry of Transport and Public Works, 1992- (IMO Doc. BCH 22/Inf.7)

MITROPOULOS, E.E. - The greening of shipping. *In: United Nations Environment Programme (UNEP) Sustainable Development International Climate action. Nairobi/London : UNEP/Sustainable Development International, 2007, pp 202-203*

MONKELBAAN, J. – [Shipping emissions: Negotiating bunker fuels in Cancun](#). *In: Bridges Trade BioRes Review, Vol. 4/No. 4, November 2010*

NATIONAL TECHNICAL UNIVERSITY OF ATHENS – LABORATORY FOR MARITRIME TRANSPORT – [Ship emissions study](#). Prepared for Hellenic Chamber of Shipping. May 2008.

NORWEGIAN MINISTRY OF THE ENVIRONMENT – [Stricter regulations on air pollution from ships](#). (The revision of the regulations concerning air pollution from ships is mostly welcomed, said the Norwegian minister of Environment, Ms Helen Bjørnøy, when opening an Intersessional Meeting on air pollution in Oslo today. The purpose of the meeting, initiated by The Government of Norway and IMO (International Maritime Organization) is to prepare recommendations, based on new technological developments, on how further to reduce air pollution from ships Press release on 13 November 2006. - [Keynote speech - IMO meeting](#)

- NOTTEBOOM, T. - The impact of low sulphur fuel requirements in shipping on the competitiveness of ro-ro shipping in Northern Europe. *In: WMU Journal of Maritime Affairs Vol. 10/No. 1, Apr 2011, pp 63-95*
- NYHUS, E. – [Climate change regulations: Background and update](#). *In: Maritime Magazine, No. 1, 1 June 2009, pp 6-9*
- OCEAN POLICY RESEARCH FOUNDATION – [Maritime society in the era of global warming](#). A message from the year 2050. Tokyo, Ocean Policy Research Foundation, October 2009.
- ODIER, F. - MARPOL : Annex VI. *In: Institut du Droit Économique de la Mer Annuaire du droit de la mer 1997 : Vol. II. Paris : Editions A. Pedone, 1998, pp 193-205. Language(s): FRE.*
- (THE) OIL COMPANIES' EUROPEAN ORGANIZATION FOR ENVIRONMENT, HEALTH AND SAFETY (CONCAWE)
 - Concawe study of the contribution of SO₂ emissions from ships to overall deposition and air quality in the Channel zone area : Submitted by OCIMF. Brussels : Concawe, 1994 (IMO Doc. MEPC 36/9/1)
 - The European environmental and refining implications of reducing the sulphur content of marine bunker fuels. Brussels : Concawe, 1993 (Report No. 1/93; IMO Doc. MEPC 34/Inf.36)
- OPDAL, O.A. / Hojem, J.F. – Biofuel ships: A project report and feasibility study into the use of biofuels in the Norwegian domestic fleet. Oslo, Zero Emission Resource Organisation, 2007. (<http://www.zero.no>)
- ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)
 – [Environmental impacts of international shipping. The role of ports](#). Paris, OECD, 2011. (ISBN 978-64-09733-9)
 - Globalisation, transport and the environment. Paris : OECD, 2010 (ISBN 978-92-64-07919-9)
 - OECD environmental outlook to 2050 : The consequences of inaction. Paris, OECD, 2012 (ISBN 978-92-64-12216-1; 978-92-64-12224-6)
- ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD) / DEN BOER, E. / VERBRAAK, G. – [Environmental impacts of international shipping: A case study of the port of Rotterdam](#). Paris, OECD, 2010 (ENV/EPOC/WPNEP/T(2009)6/FINAL)
- PATTON, V. / SCOTT, J. / SPENCER, N. – [Smog alert. How commercial shipping is polluting our air](#). Environmental Defense, 2004.
- PETERS, G.P. (et al) - Future emissions from oil, gas, and shipping activities in the Arctic. *In: Atmospheric Chemistry and Physics No. 11, 2011, pp 4913-4951*
- PETERS, G.P./ NILSSEN, T.B./ LINDHOLT, L. et al – [Future emissions from shipping and petroleum activities in the Arctic](#). *In: Atmospheric Chemistry and Physics, No. 11, pp 5305-5320, 2011*
- PEW CENTER ON GLOBAL CLIMATE CHANGE / McCOLLUM, D. / GOULD, G. / GREENE, D. – [Greenhouse gas emissions from aviation and marine transportation : Mitigation potential and policies](#). Arlington (VA), Pew Center on Global Climate Change, 2009.
- PINGKUAN DI, / CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY. Air Resources Board - Diesel particulate matter exposure assessment study for the ports of Los Angeles and Long Beach : 2005 (Draft)
- PLATTS, J. / INTERNATIONAL MARITIME ORGANIZATION (IMO) - IMO advisory mission on maritime security : Indonesia, 15 - 27 April 2007 : Consultant Mission Report : Final Report. London : IMO, 2007- (TCD/PER/F/07/C21; TC/0111-20-2010)
- ROSE, A. – The economics of climate change policy. Edward Elgar Publishers, 2009 (ISBN 978-184844081-4)
- ROUND TABLE (BIMCO/INTERCARGO/ICS/INTERTANKO) - Round table associations believe the timing is not right for an MBM. Press Release, 22 February 2012 : Round Table, 2012
- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR) – Antarctic climate change and the environment. A contribution to the international Polar Year 2007-2008. Cambridge, SCAR, 2009. (ISBN 978-0-948277-22-1)

SCOTT, J. / SINNAMON, H. - [Protecting American health from global shipping pollution](#) : Establishing an emission control area in U.S. waters. New York, Environment Defense Fund, 2009.

SEAS AT RISK – [Going slow to reduce emissions](#). Brussels, Seas at Risk, 2010.

SEAS AT RISK / BELLONA FOUNDATION (BELLONA) / NORTH SEA FOUNDATION (DE NOORDZEE) / EUROPEAN ENVIRONMENTAL BUREAU (EEB) / SWEDISH NGO SECRETARIAT ON ACID RAIN (STOP ACID RAIN) / EUROPEAN FEDERATION FOR TRANSPORT AND ENVIRONMENT (T&E) – [Air pollution from ships](#). Jointly published by Stop Acid Rain, de Noordzee, EEB, Seas at Risk, T&E and Bellona, June 2008.

SHELL INTERNATIONAL PETROLEUM CO. LTD - The influence of fuel quality on vehicle emissions. *In: Shell Briefing Note, Jul 1993*

SHIPPING EMISSIONS ABATEMENT AND TRADE (SEAAT) – [SOx – Sulphur offsetting experiment : An emissions trading scheme for shipping](#). Concept paper.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS (SNAME) - Polluting air emissions from ship propulsion : Literature review, summary and evaluation. Takoma Park, MD : SNAME, 1992- (IMO Doc. MEPC 33/Inf.17)

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS (SNAME)/ RUSSEL, B.A./ St. AMAND, D. - [Marginal abatement costs and cost effectiveness of energy-efficiency measures](#). 25 March 2011

SPYROU, A.G. – Global climate change and the shipping industry. New York, iUniversity, Inc., 2010 (ISBN 978-1-4502-4417-6)

STERN, N. – The economic of climate change : The Stern review. Cambridge, Cambridge Press, 2007 (ISBN 0-521-70080-9)

STERN, N. / HM TREASURY - Stern review on the economics of climate change : October 30th, 2006.

STOCHNIOL, A. - A rebate mechanism for an equitable maritime emission reduction scheme. *In: Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge. Abingdon : Earthscan, 2012, pp 112-147*

SUSTAINABLE DEVELOPMENT INTERNATIONAL (SDI) / UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) – Climate action 2009/2010. London/Nairobi, SDI/UNEP, 2009. (ISBN 978-0-9563722-2-2)

SUSTAINABLE SHIPPING – Emission Control Areas (ECAs) : [What you need to know. A SustainableShipping.com Briefing Paper](#). August 2009.

SVENSSON, E. – [The regulation of global SOx emissions from ships. IMO proceedings 1988-2008](#). Thesis presented at a seminar in the School of Business, Economics and Law, University of Gothenburg, 10th June 2011, for the Degree of Licentiate of Philosophy, Chalmers University of Technology, Gothenburg, Sweden, 2011.

SWEDISH ENERGY AGENCY / SWEDISH ENVIRONMENTAL PROTECTION AGENCY / SWEDISH INSTITUTE FOR TRANSPORT AND COMMUNICATIONS ANALYSIS/ SWEDISH MARITIME ADMINISTRATION – [Emission trading for sulphur and nitrogen oxides : means to green maritime shipping](#). Slottsgatan : Swedish Maritime Administration, 2007-

SWEDISH ENVIRONMENTAL PROTECTION AGENCY – [Air pollution and climate change. Two sides of the same coin?](#) Stockholm, Swedish Environmental Protection Agency, 2009. (ISBN 978-91-620-1278-6)

SWEDISH ENVIRONMENTAL PROTECTION AGENCY / NATIONAL MARITIME ADMINISTRATION
Environmental impact of pleasure craft, fishing vessels and working vessels. Solna : Swedish Environmental Protection Agency, 1994 (IMO Doc. MEPC 36/Inf.21) (ISBN : 91-620-4307-2)

SWEDISH MARITIME ADMINISTRATION - Environment-friendly shipping. Slottsgatan : Swedish Maritime Administration, 1997-

TORVANGER, A. – [Large-scale carbon capture and storage for coal-fired power: Effect on global carbon dioxide emissions](#). Oslo, Centre for International Climate and Environmental Research (CICERO), 2007. (CICERO report 2007:06).

TORVANGER, A. et al – [Climate regulation of ships](#). Oslo, Centre for International Climate and Environmental Research (CICERO), 2007. (CICERO report 2007:07).

TOUFFUT, J-P. (Ed.) – Changing climate, changing economy. Paris, Cournot Centre for Economic Studies, 2009 (ISBN 978 1 84844 836 0)

TRANSPORT AND ENVIRONMENT (T&E) – [CO2 emissions from transport in the EU27 : An analysis of 2008 data submitted to the UNFCCC](#). November 2010.

TRANSPORT FEDERATION FOR TRANSPORT AND ENVIRONMENT (T&E) – [Bunker fuel and the Kyoto Protocol: How ICAO and the IMO failed the climate change test](#). Belgium, T&E, June 2009.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)
– [Final regulatory analysis : Control of emissions from non road diesel engines](#). Washington, D.C., EPA, May 2004. (EPA420-R-007).

- [EPA proposal for control of emissions from new marine compression : Ignition engines at or above 30 liters per cylinder](#). Washington, D.C., June 2009.

- [Summary and analysis of comments: Control of emissions from marine diesel engines](#). Washington, D.C., EPA, November 1999. (EPA420-R-99-028).

UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM – [Global climate change impacts in the United States](#). 2009. (ISBN 978-1-521-144707-0)

VLADU, I.F. / HACKMANN, B. - International maritime transport under the UNFCCC process. *In: Asariotis, R.; Benamara, H. (Eds.) Maritime transport and the climate change challenge. Abingdon : Earthscan, 2012, pp 61-74*

WILDE, H.P.J. / KROON, P. / MOZAFFARIAN, M. / STEKER, T. - Quick scan of the economic consequences of prohibiting residual fuels in shipping. Petten : Energy Research Centre of the Netherlands, 2007-

WORLD ENERGY COUNCIL (WEC) – [Transport technologies and policy scenarios to 2050](#). London, WEC, 2007.

WORLD SHIPPING COUNCIL (WSC) / MINISTRY OF LAND, INFRASTRUCTURE, TRANSPORT AND TOURISM (MLIT) – Japan - Design and implementation of the Vessel Efficiency Incentive Scheme (EIS). Washington, D.C./Tokyo : WSC/MLIT, 2011

WORLD WIDE FUND FOR NATURE (WWF-UK) - Feasibility study on the application of a pollutant release and transfer register (PRTR) to the shipping industry . (Vol. 1 - Operational discharges from shipping; Vol. 2 - The legislative framework governing operational discharge from shipping; Vol. 3 - Monitoring techniques for a shipping PRTR) Godalming (UK) : WWF-UK, 1996.

WORLD WIDE FUND FOR NATURE (WWF) / OXFAM - Out of the bunker : Time for a fair deal on shipping emissions, 2011

WRIGHT, A.A. - Marine diesel engine particulate emissions. *In: Transactions Vol. 109/Part 4, 1997, pp 345-364*

VIDEOS

[Carbon War Room](#). ShippingEfficiency.org is an initiative launched by the Carbon War Room and industry-leading partners to increase information flows around international shipping's energy efficiency and ultimately help reduce the environmental impacts of the world's shipping fleet. We understand that shipping is a highly efficient form of transport, but it is also, according to independent analysis from management consultants Booz & Co., "the largest potential energy efficiency opportunity in the transportation sector where new financing models will make a difference. ShippingEfficiency.org enables anyone with access to the internet to tell an efficient, low-emission ship from an less efficient one, for the first time. Using a simple search function, users can pull up an A to G rating for around 60,000 existing ships, including the majority of the world's container ships, tankers, bulk carriers, cargo ships, cruise ships and ferries. YouTube, April 2012

INTERNATIONAL CHAMBER OF SHIPPING (ICS) - - [Shipping, world trade and the reduction of CO2 emissions film](#). (ICS has produced a short film – Shipping, World Trade and the Reduction of CO₂ Emissions – to explain what the shipping industry is doing to reduce CO₂ emissions. The film can be used with audiences of policy makers, and as a tool at exhibitions and talks.)

INTERNATIONAL MARITIME ORGANIZATION (IMO) – Greener ships for a sustainable future. London, IMO, 2011

[MARTEK MARINE](#) - MariNOx – Setting the standard for compliant and efficient engines. A shipowner guide to the NOx Technical Code. Rotherham, Martek Marine, 2006.

[VIDEOTEL MARINE INTERNATIONAL](#)

– MARPOL Annex VI : prevention of air pollution from ships. Edition 2. DVD. London, Videotel Marine International, 2010

- The Ship Energy Efficiency Management Plan. DVD, 26 mins. The objective of this training package is to inform and motivate all seafarers to increase the energy efficiency of their operations. It covers the background before describing in detail what's required for effective energy efficiency management onboard. This training package addresses the issues that shipping is entering an era of rising energy costs. Increasing energy efficiency will save money for the shipping company and the charterer. In addition, political pressure is increasing to reduce carbon dioxide emissions. London, Videotel Marine International, 2011

[Ship emissions and air quality](#). CSIRO atmospheric scientists are instrumental in Australian efforts to investigate the airborne particles that cause air pollution, a major environmental issue that affects people's health, reduces visibility, and influences climate, thanks to the on-going support of the Australian Climate Change Science Program, a collaborative research initiative of CSIRO, the Bureau of Meteorology and the Department of Climate Change and Energy Efficiency. 23 January 2013

INTERNET RESOURCES

[AirClim - Air Pollution and Climate Secretariat](#)

Baltic and International Maritime Council (BIMCO) - [BIMCO position on air pollution](#) ; [EEDI Calculator](#)

Bellona Foundation (Bellona) - [CO2 Capture and Storage](#)

Bluewater Network - [Ship air pollution](#) - (A Division of Friends of the Earth)

Bunker World - [MARPOL Annex VI – Drastic sulphur reductions to be considered](#) ; [Appalling air quality good reasons to abandon fuel oil bunkers](#)

[California Air Resources Board](#)

Carbonpositive

- [Glossary – Shipping and emissions](#)

- [Creating a voluntary greenhouse gas trading experiments is good for the shipping industry and is good for the environment](#). By John Palmisano (White Paper 10-10-1). October 2010

Chamber of Shipping of British Columbia – Canada - [Air Quality and Shipping in British Columbia](#)

[Center for Tankship Excellence - Publications](#)

[CICERO – Center for International Climate and Environmental Research](#)

[Clean Air Task Force \(CATF\)](#)

[Clean Shipping Coalition](#)

[Cleanest Ship Project](#)

[Committee on Climate Change \(CCC\) \(UK\)](#)

[CONCAWE – Fuels quality and emissions](#)

EurActiv.com - [Climate change](#)

European Commission - [Environment](#) ; [Environment – Air](#) ; [Clean Marine Award – A new EU Award Scheme for low-emission shipping](#) ; [Emissions of air pollutants](#) ; [European Pollutant Emission Register \(EPER\)](#) ; [Transport and environment](#) ; [Pollution emission from ships](#); [Clean Air Force Europe \(CAFE\) - Thematic Strategy on Air Pollution](#) ; [EU Policy on Ship Emissions](#)

[European Environment Agency](#)

[European Environmental Bureau \(EEB\)](#)

European Federation for Transport and Environment (T&E) - [Shipping](#)
European Maritime Safety Agency (EMSA) - [Air pollution](#)

Environment Canada - [Marine Emissions Reduction](#); [NOx emission study](#)

Environmental Protection Agency (EPA-USA) - [Air](#) ; [EPA Newsroom](#)

[The Global Carbon Project](#)

[Greenhouse Gas Inventory Data](#)

[Green Ship of the Future Project](#)

[Hellenic Shipping News](#)

[IEA Greenhouse Gas R&D Programme - CO2 Capture and Storage](#) (*This website provides a collection of resources related to the capture and storage of CO2*).

[The Intergovernmental Panel on Climate Change \(IPCC\)](#) (*This site has been established by WMO and UNEP to assess scientific, technical and socio- economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation*)

[Institute of Marine Engineering, Science and Technology \(IMarEST\) - Climate change position statement](#)

[International Association for the Catalytic Control of Ship Emissions to Air Pollution \(IACCSEA\)](#)

[International Bunker Industry Association \(IBIA\)](#)

International Chamber of Shipping (ICS) - [Shipping and CO2](#)

The International Institute for Applied Systems Analysis (IIASA) - [Atmospheric Pollution and Economic Development \(APD\)](#)

International Petroleum Industry Environmental Conservation Association (IPIECA) - [Presentations from IPIECA workshops on MARPOL Annex VI - February 2006 in Singapore, Brussels and Washington, DC](#)

[Marine Climate Change Impacts Partnership \(MCCIP\)](#)

[Maritime and Coastguard Agency \(MCA\) \(UK\)](#)

[NASA Earth Observatory – A Satellite’s view of shipping pollution](#) For more than a decade, scientists have observed “[ship tracks](#)” in natural-color satellite imagery of the ocean. These bright, linear trails amidst the cloud layers are created by particles and gases from ships. They are a visible manifestation of pollution from ship exhaust, and scientists can now see that ships have a more subtle, almost invisible, signature as well. Data from the Dutch and Finnish-built [Ozone Monitoring Instrument \(OMI\)](#) on NASA’s [Aura](#) satellite show long tracks of elevated [nitrogen dioxide \(NO₂\)](#) levels along certain shipping routes. NO₂, is among a group of highly-reactive [oxides of nitrogen](#), known as [NO_x](#), that can lead to the production of fine particles and ozone that damage the human cardiovascular and respiratory systems. Combustion engines, such as those that propel ships and motor vehicles, are a major source of NO₂ pollution.

[North Sea Foundation \(de Noordzee\)](#)

[National Technical University of Athens – Laboratory for Maritime Transport – Ship Emissions Calculator](#)

[Pew Center on Global Climate Change](#)

[Sea at Risk – Climate and Oceans](#)

[Shipping and Co2](#)

[Shipping Emissions Abatement and Trading \(SEAAT\)](#)

[Seas at Risk \(SAR\)](#)

[Sea at risk – “Climate and Oceans”](#)

[Sustainable Shipping](#)

[United Nations Framework Convention on Climate Change - Climate Change Secretariat](#)

[United Nations System’s Work on Climate Change - Gateway](#)

[U.S. Environmental Protection Agency \(EPA\) - Air Pollution Monitoring ; Greenhouse Gas Emissions](#)

[World Energy Council](#)

ARTICLES FROM THE PRESS

LEGAL PERIODICALS

Please also refer to “Other Publications”

'UN: Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Further Reduction of Sulphur Emissions, Done at Oslo, June 14, 1994' - International Legal Materials (November 1995) , pp 1540-1555

'Enhanced monitoring requirements for air emission sources in the United States' - European Environmental Law Review (April 1995) , pp 115-116

'European Union: Volatile organic compounds'. "Text of the European Parliament and Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound emissions resulting from the storage of petrol and its distribution from terminals to service stations" - European Environmental Law Review (April 1995) , pp 117-119

'Proposed IMO regulations for the prevention of air pollution from ships' - Journal of Maritime Law and Commerce (April 1995) , pp 183-195

'The 1994 UN ECE Sulphur Protocol' - JOURNAL OF ENVIRONMENTAL LAW (Vol 7, No 2) , pp 169-197

'Towards the approximation of environmental laws and Poland's accession to the European Union: a focus on air protection against pollution' - EUROPEAN ENVIRONMENTAL LAW REVIEW (December 1996) , pp 327-333

'The proposed IPCC Directive: Re-regulation or de-regulation?'. "IPCC Directive for the regulation of aquatic and atmospheric emissions of pollutants from activities currently covered by the provisions of Directives 76/464/EEC and 84/360/EEC" - EUROPEAN ENVIRONMENTAL LAW REVIEW (June 1996) , pp 174-179

'The Europeanisation of domestic policies: The development of EC environmental policy' - ENVIRONMENTAL POLICY AND LAW (January 1997) , pp 48-57

'Ambient Air Quality: Council directive 96/62/EC of 27 September 1996 on ambient air quality ' - EUROPEAN ENVIRONMENTAL LAW REVIEW (January 1997) , pp 23-26

'The new Directive on Ambient Air Quality Assessment and Management' - EUROPEAN ENVIRONMENTAL LAW REVIEW (July 1997) , pp 210-214

'IMO: MARPOL: New Annex VI for convention' - ENVIRONMENTAL POLICY AND LAW (December 1997) , p 469

'The Kyoto Protocol to the UN Framework Convention on Climate Change' - AMERICAN JOURNAL OF INTERNATIONAL LAW (April 1998) , pp 315-331

'UN Economic Commission for Europe: Draft Protocol to the Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants, March 31, 1998'. "Text" - INTERNATIONAL LEGAL MATERIALS (May 1998) , pp 505-529

DUNCAN FRENCH, '1997 Kyoto Protocol to the 1992 UN Framework Convention on Climate change' - JOURNAL OF ENVIRONMENTAL LAW (Vol 10, No 2) , pp 227-239

'Eurobrief: Monitoring greenhouse gas emissions'. "Council Decision 1999/296/EC of 26 April 1999 amends Decision 93/389/EEC for a monitoring mechanism of Community CO2 and other greenhouse gases" - EUROPEAN ENVIRONMENTAL LAW REVIEW (October 1999) , pp 281-283

'Protection of the marine environment'. "Although no new legal instruments were adopted in 1998, substantial progress was made in the negotiation of several texts in both the Legal Committee and the Marine Environment Committee of the IMO" - ENVIRONMENTAL POLICY AND LAW (May 1999) , pp 85-91

'Symposium: Environment 2000 - New Issues for a New Century, University of California at Berkeley School of Law, February 25-26, 2000'. "Special Issue" - ECOLOGY LAW QUARTERLY (Vol 27, No 4) , pp 913-1394

LOUISE DE LA FAYETTE, 'The Marine Environment Protection Committee: The conjunction of the law of the sea and international environmental law'. "This article outlines the work of the Marine Environment Protection Committee of the IMO in implementing measures to protect the marine environment and to conserve natural resources called for in the UN Convention on the Law of the Sea and international law, in particular as set forth in Agenda 21 and the Rio Declaration" - INTERNATIONAL JOURNAL OF MARINE AND COASTAL LAW (June 2001) , pp 155-238

CHRISTIAN PISANI, 'Fair at sea: The design of a future legal instrument on marine bunker fuels emissions within the climate change regime'. "This article suggest the adoption of a future legal instrument along the lines of Annex VI to the MARPOL convention governing air pollution from vessel" - OCEAN DEVELOPMENT AND INTERNATIONAL LAW (Jan/March 2002) , pp 57-76

LOUISE DE LA FAYETTE, 'IMO: Achievements in 2001' - ENVIRONMENTAL POLICY AND LAW (June 2002) , pp 146-151

'The IMO at the World Summit'. "When world leaders met at the Johannesburg Summit 2002 - the United Nations' World Summit on Sustainable Development - the IMO was there to report on its role in the integration of environment, development and policy making as part of its work in achieving maritime safety and the prevention of marine pollution by ships" - MARITIME STUDIES (September/October 2002) , pp 25-29

'Montreal Protocol: Methyl bromide: Compromise'. "The Extraordinary Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer was held from 24-26 March in Montreal. Parties addressed a series of issues relating to a ban on methyl bromide, an agricultural chemical, that had been left unresolved at the 15th Meeting of the Parties in November 2003" - ENVIRONMENTAL POLICY AND LAW, May 2004 (Vol.34, No.3) , pp 118-119

'Environmental policies and marine engines - effects on the development and adoption of innovations'. "This study indicates that environmental policy interventions significantly influence the innovation processes for reducing the emissions of marine engine technology" - MARINE POLICY, November 2004 (Vol.28, No.6) , pp 491-502

JASON CHUAH, 'The EU's plan to reduce air pollution from ships: progress and obstacles' - THE JOURNAL OF INTERNATIONAL MARITIME LAW, December 2004 (Vol.10, No.6) , pp 533-536

'The impact of new regulations for the prevention of air pollution from ships'. "Tony Allen (Greek Office Manager, North of England P&I Association) considers the impact of the MARPOL and EU Regulations for the prevention of air pollution from ships" - SHIPPING AND TRANSPORT LAWYER (Vol.5, No.4) , pp 36-38

'Montreal Protocol: Methyl bromide: Still not resolved'. "The 25th meeting of the Open-Ended Working Group to the Montreal Protocol on Substances That Deplete the Ozone Layer took place in Montreal, Canada, from 27th June to 1 July 2005" - ENVIRONMENTAL POLICY AND LAW, October 2005 (Vol.35, Nos.4-5) , pp 155-156

IPCC: Success on substance deadlock on procedure'. "The 24th session of the Intergovernmental Panel on Climate Change took place from 26-28 September 2005, in Montreal, Canada" - ENVIRONMENTAL POLICY AND LAW, December 2005 (Vol.35, No.6) , pp 230-232

BIN LIN, CHERNG-YUAM LIN, 'Compliance with international emission regulations: Reducing the air pollution from merchant vessels' - MARINE POLICY, May 2006 (Vol.30, No.3) , pp 220-225

Demystifying air pollution from ships via trading schemes: how far can we go? – By I. Christodoulou-Varotsi, THE JOURNAL OF INTERNATIONAL MARITIME LAW, March-April 2009, pp 169-177

Crossing the divide: The challenges of designing an ecologically coherent and representative network of MPAs for the UK – By P.J.S. Jones, A. Carpenter MARINE POLICY, September 2009, pp 737-743

TECHNICAL PERIODICALS

For a list of articles up to December 2007 please [click here](#)

For a list of articles from Jan 2007 to Dec 2009 please [click here](#)

2011

Tanker man proposes a tax on funnel emissions - By Adam Corbett "Tanker-industry veteran Jack Devanney, an outspoken critic of shipping regulators' efforts to reduce carbon emissions, has put the first case forward for a tax on carbon-dioxide (CO2) emissions measured directly from the stack as the way forward." TRADEWINDS, 21 January 2011, p 47

Is Brussels up to the task of setting CO2 legislation? - By Justin Stares "Those in the European Commission who are busy drawing up legislation on the inclusion of the maritime industries within the European Union emissions trading scheme are probably slightly depressed. The latest discovery of "security breaches" in the existing EU emissions trading scheme has undoubtedly given its credibility a good knock. News that criminals last week hacked into the accounts of legitimate traders, stole allowances worth millions and quickly sold them on the spot market raises questions as to whether Brussels is up to the task." LLOYD'S LIST, 25 January 2011, p 4

Sweden to study effect of emission restrictions - By Craig Eason "The Swedish government is set to assess if the future sulphur emission rules for shipping will have a negative effect on its businesses. A number of heavy industries in Sweden, such as mining and forestry, rely on shipping for exporting goods. Shipowners and manufacturers say that the stringent restriction on SOx emissions set by the International Maritime Organization will force them to switch to expensive distillate fuels and then increase freight rates to remain in profit." LLOYD'S LIST, 28 January 2011, p 2

Green lobby keen on California shortsea plan - By Gavin van Marle "Environmental lobby group Friends of the Earth said it would support plans to introduce shortsea shipping to California, if a number of its recommendations over how the services should operate are met. Developing shortsea services that result in cargo moving off the US road network is one of the key objectives of the Maritime Administration's Marine Highways programme - but a Friends of the Earth report said the environmental benefits may not be as great as the shipping industry claims. Report author John Kaltenstein said: "Shortsea shipping has the potential to be greener than other types of freight transport." LLOYD'S LIST, 31 January 2011, p 2

Emissions trading plan is 'burden on shipping' - By Nigel Lowry "A straight fuel oil levy on all ships has been given cautious backing by the Greek Shipping Co-operation Committee as the least harmful option among market based mechanisms for cutting carbon emissions from the world fleet. The London-based committee, which has often played the role of a think-tank as well as representing Greek shipping offices in the UK, gave measured support for a fuel levy as "the more suitable mechanism". But this was on the proviso that any mechanism should be designed and implemented by the International Maritime Organization and any revenue resulting should be directed by the IMO, and purely for environmental benefit." LLOYD'S LIST, 10 February 2011, p 2

Clean Shipping Index set to launch commercial service - By Craig Eason "Gothenburg-based Clean Shipping Index is set to launch a commercial service for shippers and cargo owners later this year. The Clean Shipping Index is one of many indexes offering to measure a vessel's environmental performance, but it claims to have the backing of cargo owners and to give a rating on more than just CO2 emissions. It also includes other emissions and discharges, along with additional criteria beyond the basic regulatory requirements, according to founder Ulf Duus. The index is competing with a growing array of ship measurement tools that are challenging owners, such as the Carbon War Room ship efficiency index launched last December in Cancun, and an index by dry cargo vetting group Rightships, which has measured the operational and design fuel efficiency of thousands of ships." LLOYD'S LIST, 10 February 2011, p 5

Tax CO2 emissions, not bunker fuel - By Steve Matthews "CTX says direct taxation of ship-based CO2 emissions is fairest option as bunkers-based carbon tax or emissions trading scheme are not feasible." LLOYD'S LIST, 10 February 2011, p 7

CO2 monitoring system options - By Steve Matthews "According to CTX, CO2 monitoring is already commonplace in shore-based industries and there are several proven and competitive technologies. One is to measure mass flow by thermal dispersion using probes, each fitted with two resistance temperature detectors. He said that the accuracy is better than +/-1% and the cost of each probe is about \$3,000. Another option is to use absorption spectroscopy to measure CO2 concentration, using a laser projecting a beam across the funnel. Accuracy is claimed at better than +/-2% and the system costs about \$35,000. He explained that by using this method it is necessary to measure both flow volume and CO2 concentration. The ultrasonic or thermal dispersion gives gas volume, but not its composition. The laser gives only the concentration. Therefore the two combined are needed to give the volume of CO2 emitted." LLOYD'S LIST, 10 February 2011, p 7

Brussels backs LNG fuel stations - By Justin Stares "Liquefied natural gas fuelling stations were among the projects selected for funding under the European Union Trans-European Transport Network programme, the European Commission has announced. Around €10m (\$13.6m) will be spent on "LNG infrastructure of filling station and deployment in ships" in at least two EU member states - Belgium and Denmark - the commission said yesterday. Brussels hopes LNG-powered ships will permit the industry to meet stringent sulphur emissions requirements in the North Sea." LLOYD'S LIST, 22 February 2011, p 3

Emission studies put ships under microscope - By Craig Eason "A number of projects are currently assessing the environmental impact of increased shipping in the Baltic Sea, and the impact of pending regulation on the region's vessels. One of the projects, the shipping-induced NOx and SOx emissions — operational monitoring network (Snoop), aims to find out how ship exhaust emissions affect the marine environment and human health in harbour areas, namely in Turku, Helsinki and Tallinn. Snoop started a year and a half ago and has managed to compile data on NOx and SOx emissions in the three ports for 2009, and is currently working on 2010 data." LLOYD'S LIST, 22 February 2011, p 4

Danish Green Ship project to examine low-sulphur solutions - By Craig Eason "Danish shipowners Norden and Maersk Tankers are to collaborate on a project to evaluate technologies best suited for meeting the low-sulphur emission rules that come into effect in 2015, writes Craig Eason. The two Copenhagen-based operators are among a group of Danish businesses under the Green Ship of the Future initiative, a private industry partnership that has brought together a number of projects, mostly to look at ways of reducing ships' carbon dioxide emissions. The Danish Shipowners Association will also participate and the Green Ship of the Future secretariat will act as co-ordinators. Funding is by the Danish Maritime Fund and the participating companies. In 2015, the sulphur emission limits in emission control areas will drop from 1.0% to 0.1%. This drastic cut will have a profound impact on many shipowners as they will be forced to make expensive decisions regarding which fuel type to use, and whether to install an abatement technology." LLOYD'S LIST, 8 March 2011, p 7

Why US shipowners shun cheap, clean LNG power - By Rajesh Joshi "Political apathy, confusion over the danger of explosions and the cost of new ships are blocking a change in fuel. Prospects of liquefied natural gas becoming a mainstream marine fuel in the US, or even gaining a critical mass of acceptance, appear rather dim. This vexes experts, because a compelling case exists for LNG ecologically and economically. Nonetheless, while the idea is catching on in Europe, in the US some experts call it stillborn." LLOYD'S LIST, 9 March 2011, p 4

New US shortsea service highlights environmental cost benefits - By Steve Matthews "Efforts to promote shortsea shipping are heavily focused on environmental benefits as compared with road transport, but many of these benefits are still hidden in terms of actual costs to users, making it difficult for shipping to compete on level terms. In a boost for proponents of shortsea shipping, US-based American Feeder Lines has confirmed that its new US coastal container service will begin operations towards the end of the second quarter. A specific selling point for the new service is that it will use environmentally friendly vessels designed to burn low sulphur fuel, including LNG and biodiesel. AFL claims that moving containers using the service will save some 24m gallons of diesel fuel per ship per year compared with moving the same cargo by road." LLOYD'S LIST, 10 March 2011, p 7

Navigating initiatives for cleaner shipping "After a decade which environmental compliance has arguable become the regulatory priority for shipowners and ports, they now find themselves working in a maze of mandatory and voluntary schemes. The EEDI is the only mechanism with regulatory credentials. Currently being circulated for adoption by parties to MARPOL Annex VI, it is central to the IMO's plans for technical and operational measures to manage CO2 emissions from ships." PORTS & HARBOURS, March 2011, p 35

European owners to miss low sulphur emissions target - By Craig Eason "European shipowners will fail to meet the low sulphur emission requirements and need to see a lenient approach from lawmakers. Speaking in the latest Lloyd's List podcast, European Community Shipowners' Association secretary-general Alfons Guinier said it looked doubtful that the region's shipowners would be able to opt for one of the three main solutions in time. The International Maritime Organization has mandated that ships should use fuel, or technologies, that limit the emission of sulphur to 0.1% as of January 2015 in emission control areas." LLOYD'S LIST, 14 March 2011, p 2

Ferry operators want rewards for early adopters - By Craig Eason "North European ferry operators say they should receive a financial incentive to help them meet the forthcoming 0.1% emission control area deadlines. Ships operating in the North and Baltic seas and the English Channel will have to use low sulphur fuel in under four years' time, or retrofit technologies to achieve the 0.1% emissions target. P&O Ferries fleet director John Garner says the only way to get ferry operators to consider low sulphur fuel is to offer incentives. High costs and system uncertainty are preventing owners from making the investment in technologies, he adds." LLOYD'S LIST, 16 March 2011, p 4

EU warns Cyprus on green strategy - By Craig Eason "Cyprus is keen to downplay a threat from Brussels of punitive action for failing to meet its marine environmental obligations as a European member state. Cyprus was meant to have marine environmental strategies that met the European marine strategy framework directive in place by last July. The commission said it was giving Cyprus, one of Europe's largest maritime states, two months to transpose EU legislation on the protection of the marine environment into its national legislature. It said it would refer the case to the European Court of Justice to impose financial sanctions if Cyprus failed to respond." LLOYD'S LIST, 17 March 2011, p 2

Call to sharpen 'green focus' - By Adam Corbett "A hopeful for the IMO's top slot says a new framework is needed for shipping to develop a sustainable green economy. A leading candidate for the post of secretary-general at the International Maritime Organisation (IMO) is calling for shipping to bring a fresh environmental initiative to a crucial United Nations (UN) environmental gathering next year. Koji Sekimizu, who heads the maritime-safety division, wants to see the IMO take the lead and develop a programme for sustainable maritime development that could be presented to the UN Conference on Sustainable Development (UNCSD) — known as Rio+20." TRADEWINDS, 18 March 2011, p 54

Norway hints at tighter control on NOx emissions - By Craig Eason "Norway's environment minister Erik Solheim has given a strong indication that the country is considering making its waters subject to strict NOx emission limits. Speaking at the annual GreenShip Technology Conference in Oslo yesterday he said the country was looking at the decision by Canada and the US to make its waters subject to the amendments to the marine pollution regulations of the International Maritime Organization as a favourable move. The European waters of the North Sea, Baltic Sea and the English Channel are subject to well-known sulphur emission rules that tighten in 2015. The waters off North America fall under the same rules as they will also be a recognised emission control area by that time." LLOYD'S LIST, 22 March 2011, p 2

IMO puts foot down on SOx rules - By Craig Eason "The International Maritime Organization will not be amending its strict SOx emission rules due to affect shipowners in 2015. Ships operating in emission control areas will have to use fuels with a sulphur content of less than 0.1%, or use technology to achieve the same result from 2015. Jo Espinoza Ferry, the IMO's newly appointed marine environment division director, said the association had received no applications from member states to address the rules, despite calls from north European manufacturers and shipping groups fearful of a modal backshift and a loss of freight." LLOYD'S LIST, 22 March 2011, p 2

Green agenda 'muddled', says ABS - By Steve Matthews "The shipping industry is in danger of getting sidetracked by the search for long-term solutions to the environmental, while more immediate challenges still need answers, according to class society ABS. Kirsi Tikka, vice-president of global technology at ABS, told Lloyd's List: "Short-term and long-term solutions to environmental issues facing shipping are tending to get muddled. Green ship ideas are still mainly at a conceptual stage and will take many years to implement." In the short term, the industry is still struggling with the availability of technology to meet fast-approaching regulatory requirements, such as ballast water treatment and low-sulphur fuel." LLOYD'S LIST, 22 March 2011, p 5

IMO to hammer out emissions measures - By Craig Eason "Market-based measures targeting the reduction of carbon dioxide from shipping are to be hammered out at the International Maritime Organization this week. A week-long meeting of the greenhouse gas working group is to go through submissions to the marine environment protection committee that detail ways shipping should be made to pay or contribute to reduction measures. Last year, a group of independent experts produced a lengthy submission to the MEPC of the 10 entries, consisting of suggestions for trading schemes or levies that would have shipping pay for its emissions and then have the money used for offsetting in the maritime sector or elsewhere." LLOYD'S LIST, 28 March 2011, p 2

IMO mulls carbon measures at intercessionary meeting "Shipping seems to be closing in on a carbon-costing formula that will reshape the industry for the rest of this century. This week, the IMO's MEPC intercessionary meeting in London is examining various measures suggested by the industry to reduce the greenhouse gas (GHG) emissions from shipping that account for 2.7% of global carbon output. As evidence of global warming mounts, shipping stakeholders have expressed interest in implementing market-based measures (MBM) to reduce CO2 in shipping, but there has been continued difficulty arriving at agreement on specific measures." FAIRPLAY, 31 March 2011, p 18

Shipping faces up to green demands - By Craig Eason "There is more to environmental compliance than operating a vessel in accordance with whatever rule has come from the International Maritime Organization. Shipping is increasingly subject to commercial environmental pressure as other companies focus on their own supply chain performance and expect their suppliers to do the same. For many organisations the environmental rules that have been set by the IMO are seen as a minimum standard, and owners hoping to sound like they have a sound environmental stewardship by stating their vessels are in full compliance are increasingly sounding like they are in fact doing the minimum needed. The development of commercial and social pressures comes as the shipping industry faces a make or break year. The IMO is hoping to get its design index sorted out and made mandatory and to develop a market-based measure. These are the two mandatory tools it hopes will demonstrate movement in tackling CO2 emissions from shipping." LLOYD'S LIST, 7 April 2011, p 2

Cop 16 – Cancun, what happened? "In short, there was little progress on the position left after Copenhagen in 2009. Shipping remains in much the same limbo as it was at the close of last year's summit. However, shipping's public image has not received the same critical view as it did last year at Copenhagen, due in large part to the positive efforts of the IMO that have been recognised by the Conference." SHIPPING REGULATIONS AND GUIDANCE, April 2011, pp 66-67

Carbon-emissions group fails to reach agreement (Ref. IMO)- By Adam Corbett "An International Maritime Organisation (IMO) working group on market-based mechanisms (MBMs) to reduce carbon emissions from shipping has again failed to come to an agreement on which system to use. The working group is attempting to develop an MBM to raise cash and help the developing world counter climate change. One insider at the meeting said: "Basically there was no progress made because there is still such a huge difference of opinion within Europe on which MBM is most suitable - and that is before we even get into the ongoing debate between developed and developing countries." TRADEWINDS, 8 April 2011, p 63

Baltic NOx plan takes inspiration from Norway - By Craig Eason "Professor Per Kågesson from the centre for transport logistics at the Stockholm-based Royal Institute of Technology has put forward a proposal to create a system that will make owners reduce the NOx emissions of ships in operation. This will be in addition to the reductions stipulated by the International Maritime Organization on newbuildings, which he

believes will take almost 30 years to take full effect. The answer, says Prof Kågesson, is to take the Norwegian NOx tax and implement a distance travelled element to the payment a ship would have to make. Like the NOx fund, the money goes into an industry pot to help vessels that operate in the Baltic Sea, regardless of flag or ownership, to install reduction technologies." LLOYD'S LIST, 11 April 2011, p 4

Swedish emission measures make little impact - By Craig Eason "The Helsinki Commission estimates that there are over 2,000 vessels in the Baltic Sea at any one time. This leads to 400,000 tonnes of NOx emitted per year, a figure that will grow as the number of vessels in the region increases. Research in Sweden at the Gothenburg-based Chalmers University estimated that efforts to reduce emissions resulted in savings of just 335 tonnes of NOx in 2008 due to the country's fairway dues. Per Kågesson at the Stockholm-based Royal Institute of Technology says that demonstrates the limited impact of the scheme." LLOYD'S LIST, 11 April 2011, p 4

More vessels fail to meet new sulphur limits - By Julian Macqueen "Lower limits on the sulphur content of bunker fuel ushered in under new regulations in July last year have sparked a dramatic jump in cases of vessels failing to comply with regulations. A 1% sulphur limit was introduced into Emission Control Areas from July 1, 2010, but ship inspections conducted by the Netherlands Transport and Water Management Inspectorate on the sulphur content of bunker fuel in ships docking at Dutch ports have revealed a 46% rate in non-compliance in the second half of last year. This compares with a non-compliance rate of 7% on the higher sulphur content of 1.5% in the period leading up to the new regulation coming into force." LLOYD'S LIST, 12 April 2011, p 1

Singapore's green shipping drive receives \$80m boost - By Colum Murphy "Singapore will spend at least S\$100m (\$80m) over the next five years in a comprehensive package to promote environmentally friendly shipping, including a 20% rebate on annual tonnage tax for qualifying Singapore-flagged vessels. Spearheaded by the Maritime and Port Authority of Singapore, the Maritime Singapore Green Initiative seeks to reduce the impact of shipping and related activities. Singapore-flagged ships that adopt energy-efficient ship designs that reduce fuel consumption and CO2 emissions that go beyond the International Maritime Organization's Energy Efficiency Design Index will get a 50% reduction of initial registration fees, as well as a 20% rebate on annual tonnage tax payable." LLOYD'S LIST, 13 April 2011, p 2

Environment debate has 'moved on' "Lloyd's Register flags up environmental themes for the future. The environmental debate has "moved on from low sulphur", according to Tom Boardley, marine director at Lloyd's Register. Addressing guests at a reception in London last month, he said concerns now encompass a broader range of issues, from exhaust scrubbing and ballast water treatment to future fuels and carbon trading. Particulate matter will also be of increasing relevance, he said, driving engine makers towards more sophisticated machinery designs. But he does not expect to see a quick reaction to these trends. "It took two oil shocks to get rid of steam turbines," he reminded his guests." FAIRPLAY, 14 April 2011, p 25

IACS: class can do more on emissions "Class societies should play a more central role in the maritime industry's efforts to reduce maritime GHG emissions, believes IACS chairman Noboru Ueda, who is chairman and president of Japanese class society ClassNK. Speaking at Sea Asia 2011 in Singapore earlier this month, Ueda said that IACS had made important efforts to develop new environmental regulations, including establishing an Expert Group to advise the IMO on technical issues related to implementing the EEDI scheme. He also reminded delegates that IACS had established a Joint Working Group in December involving other maritime groups to ensure the balanced implementation of the EEDI regulations, a statement released later noted. "We at IACS have a duty to ensure the work we do and the contribution we make at the IMO reflect the needs, opinions and aspirations of the global maritime industry," Ueda said." FAIRPLAY, 28 April 2011, p 28

Merck to turn focus on carriers' carbon footprint - By Patrick Hagen "A leading shipper plans to demand information about carriers' carbon dioxide emissions in the near future. "This will be a first step," said Rüdiger Grigoleit, vice-president distribution at chemicals and pharmaceuticals producer Merck. "We need to have a figure first before we can ask for cuts in emissions later." LLOYD'S LIST, 11 May 2011, p 2

ECAs should be de facto standard (Ref.IMO) - By Craig Eason "Shipping is facing a future where an increasing number of environmental control areas will affect operations in almost all regions, writes Craig Eason in Oslo. Ships operating in an ECA will be forced to emit less SOx and NOx in the next five years under annex VI of the Marpol marine pollution rules. Speaking ahead of a Nor-Shipping seminar in Oslo, US Coast Guard director of commercial regulations Jeffrey Lantz said owners would find their vessels increasingly working in such an area and it would soon become the de facto standard for environmental performance." LLOYD'S LIST, 24 May 2011, p 3

Brussels to step up SOx monitoring (Ref.IMO) - By Craig Eason "Brussels' amendment of its sulphur directive is set to align its targets with the mechanisms of the International Maritime Organization, but will also target better reporting and monitoring. The European Commission is preparing to reveal its amended sulphur directive and Elena Visnar-Malinovska, cabinet member of the commission's Directorate General for the Environment, said a target was to ensure better compliance within shipping. One of the aims is to promote alternative fuels. Ms Visnar-Malinovska cited liquefied natural gas-fuelled shipping, which Brussels has been backing through the Motorways of the Seas projects." LLOYD'S LIST, 24 May 2011, p 3

Japan urges China to support IMO emissions rules - By Colum Murphy "It is in the interests of China and other developing countries to agree to the proposed mandatory rules on greenhouse gas reductions for the shipping industry at the next meeting of the International Maritime Organization's maritime environmental protection committee, which will take place July in London, according to a top Japanese government official. "If more efficient ships are trading then that it is their interest because it is more economical," said Shinichiro Otsubo, director for international regulations at the safety standards division of the maritime bureau at Japan's Ministry of Land, Infrastructure, Transport and Tourism. Japan is hopeful that agreement will be reached at the Marine Environment Protection Committee on amendments to Annex VI of the marine pollution regulations, which regulates emissions from ships including NOx and SOx and particulate matter." LLOYD'S LIST, 24 May 2011, p 3

Sustainability poised to be the next big idea in shipping (Ref.IMO) - By Richard Meade "The industry stands on the cusp of a paradigm shift in climate change regulation that will ultimately affect the success or failure of a business." LLOYD'S LIST, 24 May 2011, p 6

Maritime nations hold informal talks (Ref.IMO) - By Craig Eason "Norwegian minister of trade and industry Trond Giske has brought together state representatives from a group of maritime nations at Nor-Shipping to discuss key issues around the environment, Arctic development and trade. Representatives from Singapore, India, Russia and Europe attended the informal round table. Mr Giske told Lloyd's List that Norway was determined to find a successful outcome at the summer meeting of the marine environment protection committee where a series of environmental systems are being discussed. He said he hopes to see a final agreement on the energy efficiency design index at the very least. The design index would become the IMO's first piece of mandatory regulation aimed at cutting shipping's carbon dioxide emissions." LLOYD'S LIST, 25 May 2011, p 2

DTU offers solution to the EEDI ro-ro conundrum "The International Maritime Organization's (IMO) Maritime Environment Protection Committee (MEPC) meets in London next month to discuss emissions evaluation for shipping, and in particular ro-ro ships, Hans Otto Holmegaard Kristensen of The Technical University of Denmark (DTU) looks at the industry's dilemma." THE NAVAL ARCHITECT, June 2011, pp 18-24

Shipping sinks from view as aviation flies climate protest - By Richard Meade "The shipping industry remains a vulnerable target for an increasingly confused assortment of climate change financing proposals being pushed by governments, inter-governmental organisations and more powerful industrial sectors at United Nations climate talks being held in Germany this week. While aviation sector bosses yesterday launched a high-profile assault of on Brussels' proposals to include airlines in the European Union's emissions trading scheme and Chinese officials publicly threatened legal action against the emissions plans, the shipping industry once again slipped under the political radar as two weeks of UN climate talks re-opened in Bonn. Both the shipping and aviation industries have been identified by the UN Framework Convention on Climate Change as sources for the annual target of \$100bn identified by previous UNFCCC talks. However, a lack of agreement on the details of international funding responsibilities has led to an increasingly complex and uncertain range of options being considered for the shipping industry." LLOYD'S LIST, 7 June 2011, p 1

Be prepared for rule changes on emissions, shipowners warned - By Steve Matthews "Shipowners should start planning now for the new regulations due to come into force in 2015 requiring sulphur levels in marine fuel used in Emission Control Areas to be cut to 0.1%, and should not rely on an assumption that implementation might be postponed or amended. Søren Christian Mayer, global sales director of bunker supplier OW Bunker, said owners should start putting in place fuel procurement plans now to ensure they secure the necessary supplies. Speaking at the International Bunker Conference in Istanbul, Mr Mayer said that lingering hopes that new regulations will be stalled or altered were misplaced and were leading to apathy in planning for the change, which could leave owners unprepared." LLOYD'S LIST, 7 June 2011, p 2

China's shifting energy mix "Cleaner fuel use is expected to rise, but seaborne shipments will continue to increase throughout the decade. China is expected to consume more natural gas in the medium to long term as the polluting effect of steam coal is acknowledged. This was the key issue emphasised by Khong Cho-Oon, chief political analyst at energy major Royal Dutch Shell, at a seminar in Singapore last week. In February, Chinese environment minister Zhou Shengxian said the government feared the by-products of rapid industrialisation and surging growth could hinder social and economic development. Reducing pollution is a priority in the government's latest five-year plan." FAIRPLAY, 9 June 2011, p 9

Eco tough talking at Gdask "Shipping makes a valuable contribution to Europe's logistics sector, but emissions issues cloud the bigger picture. Shipping was in the firing line at the European Maritime Day in Gdask, Poland, last month. Even though Greek Member of the European Parliament Georgios Koumoutsakos praised the maritime sector for its contribution to reducing emissions – "maritime transport is on average the best-performing mode of transport in terms of greenhouse gas emissions per tonne-km" – others were quick to identify issues that still need to be addressed." FAIRPLAY, 9 June 2011, p 29

Breathing easy - By Tom Westwood "Monday 1 August 2011 will see an amendment to MARPOL Annex VI (Regulations for the prevention of Air Pollution from Ships) that will create the North American Emission Control Area. The ECA will extend 200nm from much of the coastline of Canada, the USA, the eight main US-dependent Hawaiian islands and French territories including Saint- Pierre-et-Miquelon." SAFETY AT SEA INTERNATIONAL, June 2011, p 42

Brussels to help shipping meet low-sulphur challenges - By Craig Eason "The European Commission is set to release a draft update for its sulphur directive in the coming weeks. The expectation is that it will align European rules with those of the International Maritime Organization, namely the sulphur emission limits expressed in the amended annex VI of the marine pollution convention. This will be a further blow for shipowners operating in emission control areas. They have been hoping for intervention from Brussels because, they say, the lower emission limits of 0.1% in 2015 in the ECA will penalise trade, industry and shipping in those waters compared to the rest of the world." LLOYD'S LIST, 21 June 2011, p 7

July MEPC meeting hailed as make-or-break for energy index - By Craig Eason "July 15 is a Friday. It will become an important day for the International Maritime Organization as this is the day when its next Marine Environment Protection Committee comes to a close, having either agreed on measures to reduce shipping's CO2 emissions, or completely failed to pull together to find any kind of consensus on the topic. Discussions about how the shipping industry should reduce its CO2 footprint have been bogged down in a number of parallel debates, both inside and outside the IMO, that have become far too political for what the MEPC is all about. MEPC is a committee that should be looking at the technical measures that shipping should be adopting to reduce its impact on the environment and to provide ever safer ships. The development of an Energy Efficiency Design Index, the ship energy efficiency management plan and the energy efficiency operational indicator are three such concepts that should be fairly easy, in principle, to discuss." LLOYD'S LIST, 23 June 2011, p 4

Europe insists it's full steam ahead on sulphur limits "Environment commissioner Janez Potocnik argues that shipping can meet 2015 emissions rules. Any lingering shipping industry hopes that the European Commission might be ready to defer its planned revision of the EU Sulphur Directive were brushed aside unceremoniously by environment commissioner Janez Potocnik earlier this month. As Fairplay 24 reported at the time, he told a commission-organised maritime stakeholder conference in Brussels on 1 June that IMO ship emission rules, including, notably, controversial sulphur limits, need to be transposed into EU legislation "as quickly as possible"." FAIRPLAY, 23 June 2011, p 29

Black carbon is focus of tighter emissions curbs - By Craig Eason "Even while shipowners are lambasting legislators about the rule changes on the permissible levels of sulphur gas in ships' exhaust in emission control areas, they face the prospect of even tighter constraints as black carbon and other particulate matter come under further scrutiny. The International Maritime Organization has started regular discussions on the impact of particulate matter, particularly black carbon, on human health and the environment. Black carbon appears to be quite hard to define. It is a particulate emission from an engine, much finer than other such matter contained in the ship's exhaust, and almost exclusively carbon. Some people call it soot, others say this is wrong. This is why it is coming under the maritime regulatory magnifying glass. Other industries have rules on black carbon and vehicle emissions have already been curbed. Experts have said that if this trend goes on, then shipping will become one of the worst offenders." LLOYD'S LIST, 28 June 2011, p 7

Brussels threatens regional rules ahead of climate talks - By Richard Meade "The European Commission has fired a final warning shot of regional climate change legislation across the shipping industry's bow in advance of a pivotal International Maritime Organization meeting next month. Addressing a series of meetings in Brussels on Tuesday, European transport commissioner Siim Kallas and 'climate action' commissioner Connie Hedegaard made clear to both industry representatives and governmental officials that while a global solution to CO2 reduction from shipping remains the preferred option, the European Union will pursue regional rules for shipping if an international agreement cannot be secured by the end of the year." LLOYD'S LIST, 30 June 2011, p 1

Brussels insists low-sulphur directive will not be delayed - By Craig Eason "Brussels has denied that its forthcoming sulphur directive revision will be delayed, or that it will attempt to change any of the air-emission rules made by the International Maritime Organization's marine pollution convention. It had widely been expected that the European Commission's draft proposals for an amendment to the 2005 sulphur directive would have been completed by end-June. The changes are set to bring the European Union's rules into harmony with those of Marpol, and will put into European law the wording from Marpol annex VI regarding low-sulphur fuels, a text that has been the cause of concern for north European shipowners and manufacturers." LLOYD'S LIST, 5 July 2011, p 1

Scheme aims to improve tanker supply chain while reducing emissions and bunkers - By Adam Corbett "The tanker industry has come out with its most significant move so far to improve its environmental credentials. A new super efficient scheduling system is being launched that promises to dramatically cut emissions. The initiative, called "Virtual Arrival" and headed by the Oil Companies International Marine Forum (OCIMF) and tanker owners' association Intertanko, has been more than two years in the making and comes after extensive trials involving some 30 separate voyages. Put simply, Virtual Arrival attempts to end the long-standing practice of tankers making full speed to discharge ports only to be kept waiting when, as is becoming increasingly common, there is congestion. Instead, when there is a delay at port, it encourages operators and oil companies to come to a mutual agreement on the most efficient route and to meet a rearranged arrival that will reduce fuel consumption and greenhouse-gas emissions." TRADEWINDS, 1 July 2011, pp 42-43

Virtual Arrival cuts fuel and emissions "The tanker shipping sector has launched a voyage management scheme that it says can reduce fuel consumption and emissions by more than 20% in some cases, all without the installation of additional equipment. Virtual Arrival, which was officially launched in Brussels at the end of June by the Oil Companies International Marine Forum (OCIMF) and Intertanko, will enable vessels to save fuel by letting them know in advance they would have to wait at a port before being able to berth and unload their cargoes. If this is the case they can reduce speed to delay their arrival. The virtual arrival date of the scheme's title – the originally planned arrival date – is compared with the vessel's actual arrival date to calculate the savings in fuel and cuts in emissions. These can then be shared between, generally, the shipping company and charterer." FAIRPLAY, 7 July 2011, p 27

Take a break "At a DNV press conference in Oslo on the eve of Nor-Shipping, Solutions was slightly amazed, but more than a little encouraged, to hear the Norwegian class society say that perhaps too much attention has been paid to environmental matters and not enough to seafarer training and education over recent years. That is a refreshing change of message and one which the IMO could do well to emulate – beginning with MEPC 62 in the week after this issue of Solutions is distributed. At MEPC 62, the IMO will once again be discussing greenhouse gases and ways that it can extract from shipowners much of the billions of dollars that the UN wants to redistribute to developing countries. It has become clear, and even admitted by the UN, that carbon reduction has nothing to do with climate change but is merely a mechanism to enrich the Third World." FAIRPLAY SOLUTIONS, Jul/Aug 2011, p 1

Rotterdam slams Brussels as 'rigid' over modal split - By Roger Hailey "Port wants policymakers to halve the proposed 300 km minimum distance from ports as the trigger point for funding to promote modal shift from trucks to rail and barge. On the separate issue of Emission Control Areas, Rotterdam argues for a "level playing field" for economic and ecological reasons. "Rotterdam fully supports existing international agreements within the International Maritime Organization for sharpening the standard from 1% sulphur to 0.1% sulphur for ECAs in 2015." However, the port authority believes this should apply not only to the North Sea and Baltic Sea ECAs, "but to all coastal waters". LLOYD'S LIST, 8 July 2011, p 2

Regulators to put CO2 rules into an existing convention - By Adam Corbett "Regulators are to attempt to make energy-efficiency measures for ships mandatory, although the success of the move still depends on healing a political rift between developed and developing economies, which want to maintain their immunity from regulations on reducing greenhouse gasses. The matter could even force the International Maritime Organisation (IMO) into a vote if member states once again become mired in bickering and time runs out. At the centre of the controversy at next week's Marine Environment Protection Committee (MEPC) meeting is a bid to make the ship energy-efficiency design index (EEDI), which will give an energy rating to all newbuildings, a mandatory part of the Marpol convention Annex VI." TRADEWINDS, 8 July 2011, p 47

Climate change compromise deal could be cut this week - By Richard Meade "Weeks of high level diplomatic negotiations and political horse-trading are expected to culminate in a make or break compromise agreement on greenhouse gases that will see governments adopt international technical measures to reduce CO2 from shipping by the end of this week. If successful, the deal should be enough to finally allow the International Maritime Organization to claim a politically vital, if not somewhat limited, victory in the fractious greenhouse gas debate that had previously stagnated within its committees. Lloyd's List can reveal, however, that the provisional agreement is unlikely to be implemented internationally for several years and is not expected to be robust enough to prevent the European Union from pursuing its own regime of mandatory regional measures for shipping companies." LLOYD'S LIST, 11 July 2011, p 1

Coating could cut fuel costs by 20% - By David Osler "Report on eve of MEPC shows how simple solutions have potential to reduce CO2 emissions. Fluoropolymer foul release coating could cut fuel consumption by more than 20% for bulk carriers and by more than 9% on average for all vessel types, saving shipowners \$4.4bn a year if universally used, according to a technical paper Britain is set to table at the International Maritime Organization. The implication of the Maritime and Coastguard Agency document, which has been submitted to the IMO's influential Marine Environmental Protection Committee, is that the current industry estimate of just 5% savings may substantially understate the case." LLOYD'S LIST, 11 July 2011, p 2

Europe contemplates a speed limit on the seas - By Craig Eason "If the IMO fails to deliver on cutting greenhouse gas emissions, the European Union could intervene by enforcing mandatory slower steaming on ships destined for EU ports. As one of its potential measures to reduce shipping's carbon dioxide emissions, the European Commission is contemplating a potential mandatory speed reduction for all ships entering European Union ports. The member states and lobby groups at the International Maritime Organization that are taking part in this week's environmental meeting know they have the commission breathing down their necks if they fail to agree on measures to counter shipping's greenhouse gas emissions. Even if the most commonly accepted solution, the energy efficiency design index, is agreed on, there is still the prospect that Brussels will find this insufficient and go it alone in designing its own measures." LLOYD'S LIST, 12 July 2011, p 7

Opening address to MEPC is timely reminder of need for compromise - By Efthimios Mitropoulos "I will start by asking you not to put political and other interests above those of the environment; and not to lose sight of what we have set out to do, and achieve, under the respective agenda item — which, I need hardly clarify, is but the protection of the environment against ship-generated GHG emissions. In attempting to do that, there is an imperative need that we think globally, and act globally — not narrowly, nationally and, by implication, selfishly. Out of all this endeavour, let there be only one winner — and let that winner be none other than the environment." LLOYD'S LIST, 15 July 2011, p 4

Bunker levy 'passing the buck' on climate change - By Roger Hailey "The British Shippers Council has attacked a proposed bunker levy as "passing the buck on tackling climate change". At a quarterly meeting of the BSC, an independent arm of the UK's Freight Transport Association, the bunker levy idea was "resolutely rebuffed" as a means to fund environmental compensation schemes. The council believes it would "simply pass on shipping carbon costs rather than address the real issue of curbing carbon and greenhouse gas emissions". The bunker levy scheme has been put forward as a way of capturing billions of dollars from the maritime industry, which can then be redistributed via the International Maritime Organization into an environmental compensation scheme to help shipowners meet their climate change responsibilities and reduce carbon emissions." LLOYD'S LIST, 18 July 2011, p 2

IMO agrees measures to cut greenhouse gas emissions - By Steve Matthews "Decision by vote and not consensus not ideal, says secretary-general Efthimios Mitropoulos. The International Maritime Organization's Marine Environment Protection Committee finally agreed late on Friday to put the Energy Efficiency Design Index for new ships and the Ship Energy Efficiency Management plans for all ships on a mandatory footing. Following a prolonged and sometimes heated debate the matter was forced to a vote. There was a decisive vote in favour with 49 states

supporting the amendment and just five opposed, though the five included influential countries China, Brazil and Saudi Arabia. Two countries abstained and two were absent. Although not the hoped for consensus outcome, this decision is crucial to the IMO's efforts to present a united shipping industry approach to upcoming global climate change talks." LLOYD'S LIST, 19 July 2011, p 1

Brussels' sulphur directive changes will cut shortsea freight by 30% - By Roger Hailey "European shippers have criticised proposed amendments by Brussels to a directive that aims to reduce SOx emissions by up to 90% and fine particle emissions by up to 80%. The European Shippers' Council acknowledges the need to cut pollution but argues that the deadline for a 0.1% sulphur content of liquid fuels should be extended from 2015 to 2020, otherwise up to 30% of shortsea freight could be lost to road hauliers. The ESC says that any European Commission proposals on sulphur reduction should be "practical and achievable without seriously damaging the future prospects of European industry and which results in real environmental benefit". LLOYD'S LIST, 19 July 2011, p 2

Finnish owners slam amendments - By Tom Leander "The Finnish Shipowners' Association has joined the outcry over the European Commission's proposed amendments to the sulphur directive, saying if enacted they would move industrial investments away from Northern Europe, increase road transport at the expense of shipping, and "the final environmental benefit could be negative". The commission's proposed legislation, which came out on July 15, revises an earlier directive from the International Maritime Organization on the sulphur content of certain liquid fuels. It incorporates new IMO standards into European Union law. The proposal calls for vessels burning marine fuels in the Baltic Sea, the North Sea and the English Channel to achieve a maximum sulphur content of 0.1%, down from 1.5% by 2015." LLOYD'S LIST, 19 July 2011, p 2

Japan's top man at MEPC bullish on emission rules - By Colum Murphy "Japan has expressed confidence that new mandatory rules on greenhouse gas emissions will be adopted early by the international shipping community, despite the provision of a four-year waiver period. Shinichiro Otsubo, the head of the Japanese delegation to the International Maritime Organization's Marine Environment Protection Committee, told Lloyd's List that Japan was "generally satisfied" with the agreement that was reached last Friday in London." LLOYD'S LIST, 20 July 2011, p 2

Germany welcomes IMO's mandatory efficiency standards - By Patrick Hagen "Germany's maritime industries have embraced the International Maritime Organization's decision last Friday on new regulations to reduce CO2 emissions from shipping. The German shipbuilders' association VSM and shipowners' club VDR welcomed the decision, as did the country's transport minister Peter Ramsauer. "The approval of efficiency standards which are mandatory worldwide is a milestone for the IMO," said VDR managing director Ralf Nagel." LLOYD'S LIST, 20 July 2011, p 2

Will the IMO deal bear up to scrutiny? - By Adam Corbett "Regulators have managed to thrash out a deal on reducing carbon emissions from shipping. Despite a seemingly irreparable rift between developed and developing countries, the deal-maker was a condition that basically said any signatory can opt out of minimum efficiency standards for new ships for up to four years after they come into force (see story). Many flag states including the largest, Panama, are likely to allow owners who want to build ships to do so without applying minimum efficiency standards. But such owners would in theory find themselves at a disadvantage in the trading market. Not only would such ships burn more fuel than so-called Energy-Efficiency Design Index (EEDI) ships but they would also hold less value in the secondhand market. Commercial sense should dictate that owners opt for the more expensive initial costs of ordering EEDI ships over cheaper non-compliant vessels that cannot compete." TRADEWINDS, 22 July 2011, p 2

'Waiver' threatens IMO green plans - By Adam Corbett "But the IMO views the move as necessary to win the support of developing nations for its Energy Efficiency Design Index. A breakthrough international agreement on emissions could be seriously weakened by a get-out clause allowing flag states not to apply some of the regulation up to four years after they enter into force. The International Maritime Organisation (IMO) member states approved a mandatory Energy Efficiency Design Index (EEDI) to be applied to ships contracted after 2013 and a Ship Energy Efficiency Management Plan (SEEMP), which will come into force for all existing ships in the same year. Flag states will have an exemption on the EEDI requirement. The "waiver" was put into the agreement covering EEDI to win the support of developing countries, which were concerned that applying controls on ship carbon emissions could be the start of losing their right to immunity from carbon controls under the United Nations Framework Convention on Climate Change." TRADEWINDS, 22 July 2011, p 38

Stopford, M. (Dr.) – [Revolution on the engine room – Shocking revelations](#). SUSTAINABLE SHIPPING, 22 July 2011.

Ignore the politics: carbon is now a commercial imperative - By Richard Meade "For those resolutely ignoring the tedious political saga over greenhouse gas emissions from shipping, the practical conclusions from the International Maritime Organization's recent Marine Environment Protection Committee are relatively simple. If you are planning to order a new ship at any point in the future you will now need to make sure it fits somewhere around the top end of efficiency standards, otherwise you will not be able to sell it and trading your vessel will become increasingly difficult and unprofitable beyond 2013. If you are currently operating ships and have any desire to see them remain profitable in the future, you should be accounting for their carbon output to a near forensic degree." LLOYD'S LIST, 26 July 2011, p 7

Shipping leads the way as MEPC sets carbon standard - By Neville Smith "MEPC decision on global scheme puts shipping in the vanguard of carbon reduction. Having endured a decade of criticism that it was lagging behind in tackling greenhouse gas emissions, shipping is suddenly out in front. With the adoption of amendments to MARPOL Annex VI by the Marine Environment Protection Committee (MEPC), the industry now boasts the only global, legally-binding carbon reduction scheme. The adoption will make mandatory the Energy Efficiency Design Index (EEDI) for new ships and the Ship Energy Efficiency Management Plan (SEEMP) for existing ships with entry into force expected on 1 January 2013." FAIRPLAY, 28 July 2011, p 22

Call for co-operation over CO2 reduction - By Steve Matthews "International Chamber of Shipping chairman Spyros Polemis has written to the European Commissioner for Climate Action Connie Hedegaard, pleading for the commission not to take unilateral action over cutting ships' carbon dioxide emissions, but rather to co-operate with the industry's efforts. He says the ICS wants to build on the decision at the International Maritime Organization Marine Environment Protection Committee to adopt the Energy Efficiency Design Index for newbuildings and the Ship Energy Efficiency Management Plan for all ships. In welcoming the positive statement the commissioner made in response, Mr Polemis says these measures mean the industry as a whole can deliver more than a 20% reduction in emissions per tonne per km of cargo by 2020." LLOYD'S LIST, 1 August 2011, p 2

Trading on emissions - By Nigel Lowry "Emissions trading advocate Helena Athoussaki only launched her company Carbon Positive Services in Greece about a year ago and already occasionally hears herself introduced as 'Mrs ETS'. "It is probably because they have forgotten my real name," says the 40-year-old interactive media expert who embarked on a new career as a venture capitalist about seven years ago." LLOYD'S LIST, 3 August 2011, p 12

Emissions tax to be passed on to customers - By Gavin van Marle "Leading shipper groups have claimed that introducing an emissions tax on vessels will do nothing to reduce shipping emissions, or encourage carriers to use more efficient vessels and fuel. Three organisations - the European Shippers Council, the British Shippers Council and the Global Shippers Forum - claimed that a green tax levied on bunker fuel would simply be passed on to customers in the form of a new surcharge." LLOYD'S LIST, 5 August 2011, p 2

Industry puts EU under pressure over emissions - By Adam Corbett "The European Union (EU) is coming under increasing pressure from the business world to ditch its regional stance on controlling shipping emissions. The Confederation of Finnish Industries, known as EK, backed by Europe's largest business association, BusinessEurope, is the latest to hit out at the EU sulphur directive. The directive seeks to reduce the sulphur content of marine fuel to just 0.1% in specially designated European emission-control areas (ECAs) by 2015. In a statement, EK described the decision as a "disappointment". While not arguing against the need to reduce sulphur emissions in Europe, EK explains that owners need more time to develop technology. The European Commission (EC) is currently conducting a review of the proposed directive due to be completed in 2013." TRADEWINDS, 5 August 2011, p 35

Chamber urges EU to keep shipping out of CO2 trading - By Steve Matthews "The International Chamber of Shipping is keeping up pressure on the European Commission not to include shipping in its emissions trading scheme. ICS secretary-general Peter Hinchliffe said in a speech to the International Tribunal of the Law of the Sea in Hamburg: "CO2 emissions from international shipping cannot be reduced effectively and meaningfully through the incorporation of shipping into any regional financial instrument. Therefore ICS is strongly opposed to the application of any regional greenhouse gas scheme to international shipping." LLOYD'S LIST, 9 August 2011, p 2

Chamber of Shipping slams ICS over fuel levy - By Steve Matthews "The UK Chamber of Shipping says the International Chamber of Shipping was premature in coming out clearly in favour of a bunker fuel levy as its preferred market-based measure for shipping to reduce greenhouse gas emissions. BCS director-general Mark Brownrigg told Lloyd's List that BCS's stance that it was too soon to take a firm decision on the matter was a minority one. With shipping industry opinion still divided over market-based measures, the chamber is seeking to inform the debate by publishing detailed guides on the practical implications of the two main options, a cap and trade system and a contribution fund based on a bunker fuel levy." LLOYD'S LIST, 11 August 2011, p 2

Tidal answer to alternative energy dilemma – By Michael Grey "Everyone wants green energy, but increasing worry is being expressed about its cost, and its practicality." BIMCO BULLETIN, Vol.3, No.3, pp 52-54

ICS warns EU of regional risks "The International Chamber of Shipping (ICS) hopes to dissuade the European Union from developing its own regime for reducing CO2 from shipping. It has written to Connie Hedegaard, European commissioner for climate action, and warned that if regional legislators follow a different course from the one agreed at the recent MEPC meeting at the IMO, there is a risk of serious market distortion and the move would not help the global need for action on climate change." FAIRPLAY, 11 August 2011, p 23

ICS chief hits out at EC emissions interference - By Adam Corbett "International Chamber of Shipping (ICS) head Peter Hinchliffe has hit out at European Parliament (EP) interference in the International Maritime Organisation (IMO)'s efforts to reduce shipping emissions. Hinchliffe, who was speaking at the International Tribunal for the Law of the Sea in Hamburg, says the EP is attempting to force the IMO's hand on an issue that it does not fully understand. He said: "We saw it done over recent fuel sulphur-content legislation and we are seeing it again over CO2 [carbon dioxide] emissions. The European Commission [EC] has told the IMO on several occasions that if it does not have legislation in place by a certain date then Brussels will impose unilateral legislation within Europe. "Although people imagine that this could mean the inclusion of shipping in the European Emission Trading Scheme, like international aviation, in practice it is clear that Europe does not really know how to deal with the complexity of shipping." TRADEWINDS, 12 August 2011, p 38

UK Chamber guides cover greenhouse gas debate - By Steve Matthews "The UK Chamber of Shipping has published a pair of manuals which it intends to inform the debate on the choice of market-based measures that shipping will need to adopt in reducing greenhouse gas emissions. The industry will need to meet governmental demands in addition to the technical and operational efficiency measures agreed at the IMO last month. The Chamber acknowledges there are differing opinions among its own members between a contribution fund based on a bunker levy or a global emissions trading system, although the Chamber itself has not come out in favour of either option. The manuals set out the practical aspects and implications of implementing each option. Although market-based measures are based on financial instruments, they are clearly intended to incentivise a reduction of CO2 emissions from ships and therefore have operational and technical implications." LLOYD'S LIST, 16 August 2011, p 7

No waiver on carbon, says IMO - By Lee Adamson "Sir, I refer to your article 'Shipping leads the way as MEPC sets carbon standard' (28 July 2011) reporting on the successful outcome of the recent meeting of our Marine Environment Protection Committee, with the adoption of amendments to MARPOL Annex VI on energy efficiency for ships. The article correctly positions IMO at the vanguard of carbon reduction given that the amendments constitute (a) the first international climate change treaty provisions to be formally adopted since the 1997 Kyoto Protocol and (b) the first globally binding instrument introducing energy efficiency regulations for an international industry sector. Your readers should, however, know that it is not the case that a waiver has been granted specifically to developing countries." FAIRPLAY, 25 August, 2011, p 34

Cruise lines face squeeze from tough green laws and economic instability - By Geoff Garfield "Cruise lines face the double whammy of major challenges presented by tougher environmental legislation and economic uncertainty, says a new report. The 1 August 2011 introduction into force of an International Maritime Organisation (IMO) requirement for cruiseships to carry and use only marine gas oil in the Antarctic region, for example, threatens to limit cruiseship deployment by the larger lines. Also, entry into force in one year's time of the recently IMO-approved North American Emission Control Area (ECA) along the Atlantic and Pacific coasts of the US and Canada will have a "significant" impact, according to German bank DVB." TRADEWINDS, 26 August 2011, p 18

Oxfam and WWF in joint plea for a bunkers levy - By James Campbell "Oxfam and the World Wide Fund for nature have published a joint report calling for a carbon tax on international shipping, an industry which they said accounted for around 3% of global emissions. The two charities said that a "carbon price" of \$25 per tonne would increase bunker costs by around 10% and cost the shipping industry approximately \$25bn per year, equivalent to around 0.2% of the total value of global trade. "This is likely to have a marginal impact on global patterns of trade, not least when seen in the context of much larger changes in bunker fuel prices and freight rates over the past two decades," the report said. The proceeds of the tax would be divided between the UN's Green Climate Fund and a distribution to developing countries to compensate them for the increased costs of imports, based on their share of global imports by sea." p 5

Shipowners given a glimmer of hope over low SOx rules - By Craig Eason "Some North European countries could be about to push for a more lenient approach to enforcing the approaching low sulphur emission rules. Speaking to Lloyd's List, Swedish infrastructure minister Catharina Elmsäter-Svärd said European ministers will be meeting in the coming week and sulphur emissions will be on the agenda. Shipowners and industrial manufacturers in Northern Europe have been petitioning Brussels to take a stance against what they see as restrictive sulphur emission rules that have been written into international marine pollution regulations and are about to be copied into a European directive. Although Brussels has indicated it will not be interfering with, or proposing changes to, the amendments of the International Maritime Organization's marine pollution regulations, known as Marpol, there is a growing belief in the concerns being expressed by shipowners." LLOYD'S LIST, 13 September 2011, p 7

IMO gets industry backing "The shipping industry remains firmly behind the IMO as the architect of change when it comes to regulating shipping's CO2 emissions, according to Peter Hinchliffe, International Chamber of Shipping (ICS) secretary general." TANKER OPERATOR, Aug/Sep 2011 p 6

UK transport committee to probe low-sulphur fuel rules - By Craig Eason "The UK Parliamentary Transport Committee has called for evidence on the possible impact of low-sulphur regulations on shipping. The International Maritime Organization's pending rule that ships in special areas use fuels with less than 0.1% sulphur content, or abatement technology, have led to industry concerns over fuel availability and modal shift once implemented in 2015. The IMO rules are set to be copied into the European Union's updated sulphur directive. The UK coastline straddles the IMO's emission control area where the 0.1% sulphur limit will come into force in 2015, and other waters where the limit will remain at 3.5% until 2020, when it drops to 0.5%." LLOYD'S LIST, 16 September 2011, p 2

Host of 'green' measures put shippers in a muddle - By Ian Lewis "German operator Hamburg Sud has added to the confusion of shippers seeking a "green" carrier by producing another measure of emission costs. The system, known as GL Emission Manager, is to be used throughout the company's entire fleet from the start of 2012. The goal — and that of partner classification society Germanischer Lloyd (GL) - is to capture all data relevant to reducing the emission of contaminants by its deployed fleet. But for shippers it is just one of a long list of bewildering initiatives that are making it difficult to choose an environmentally friendly or "sustainable" operator." TRADEWINDS, 16 September 2011, p 13

Northern Europe pushes for delay to low-sulphur enforcement - By Craig Eason "North European countries could be about to push for a five-year delay in the implementation of tough SOx emission rules. Under amended rules agreed at the International Maritime Organization, a 2015, SOx emission limit of 0.1% was agreed for ships operating in the Baltic and North Seas and the English Channel. The amendments to the IMO marine pollution convention, Marpol, mean as of 2015, the emission control areas will have a 0.1% limit, while the rest of the world remains at a 3.5% limit, before dropping to 0.5% in 2020. The European Commission has now issued its proposals for amendments to its SOx directive for shipping, basically aligning it with the IMO. The commission proposals will be phased in from 2015 to 2020, aligning them with the dates written into the revised annex VI of Marpol." LLOYD'S LIST, 19 September 2011, p 6

Measure before reduction "Chris Daw, managing director, Kittiwake Procal explains why shipowners should measure emissions for compliance and efficiency. For anyone in shipping, the escalating demands of emissions reduction continue to permeate all operational areas. Charterers, shippers and large multi-nationals are now asking for emissions data as they scrutinise every element of their supply chains in order to maximise operational and environmental efficiencies." SHIPPING WORLD AND SHIPBUILDER, September 2011, p 41

Emissions down, warming up "Low-sulphur fuel regulations cut Californian emissions while adding to global warming, study shows. Californian clean fuel regulations and voluntary slow steaming may reduce emissions but increase warming, a new study has revealed. Voluntary slowdowns by shipping companies "substantially reduce air pollution caused by near-shore ships," according to a study by the US National Oceanic and Atmospheric Administration (NOAA). Despite this, the net effect was to warm the atmosphere rather than cool it." FAIRPLAY, 22 September 2011, p 28

ICS responds to emissions tax report "The International Chamber of Shipping (ICS) has urged caution in response to a report calling for a tax on shipping's carbon emissions. Its external affairs chief, Simon Bennett, told Fairplay 24 (8 September): "This will only encourage governments that would like to keep the money for themselves, rather than using it to help developing countries improve the environment." He was responding to a report from charities Oxfam and the World Wide Fund for Nature (WWF), Out of the Bunker – time for a fair deal on shipping emissions. This calls for a carbon price of about \$25/tonne, which, it said, would cost shipping about \$25Bn/year – equivalent to about 0.2% of the total value of global shipping, the report said. Bennett said if money were to be raised in this way, it must be routed through an IMO fund, with the lion's share being sent to environmental projects." FAIRPLAY, 22 September 2011, p 31

Early adopters of SOx emission rules given lifeline - By Craig Eason "Brussels has issued guidance to European member states on how they can help shipowners overcome the challenges of sulphur emission legislation. While it does not support a change of any pending legislation it outlines financial incentives that may be available to meet some of the obstacles it believes shipowners may face in coping with the rule changes. Shipowners and port authorities in northern Europe remain alarmed about a potential hike in fuel costs, and a subsequent modal shift as a result, when the European Commission brings its sulphur directive into line with the emission rules of the International Maritime Organization." LLOYD'S LIST, 26 September 2011, p 2

Bundesrat calls for EU sulphur limits to be standard - By Friederike Krieger and Craig Eason "German coastal states fear they will lose out to Mediterranean ports, which are not in ECA. The Bundesrat, Germany's upper house of parliament, is demanding standardised sulphur limits for shipping fuel for the whole European Union after it unanimously agreed to a proposal on Friday by the German coastal states Lower Saxony, Schleswig-Holstein and Hamburg. Germany's decision goes against the general thrust of the EU's amendments to its sulphur directive. Brussels' aim is to harmonise its rule with Annex VI dates and emission targets issued by the International Maritime Organization. According to Brussels' drafts, which are up for comment at the moment, the sulphur limit in shipping fuel should be lowered to 0.1% by 2015 in the Emission Controlled Area." p 2

Blue Denmark is keen to promote its green credentials "Denmark has become the 29th member of the International Maritime Organization to sign up to the ballast water convention. The addition of the 2.2% of the global fleet from Danish shipping means these 29 states represent 27.6% of the global total. Both Norway and Denmark have been active in putting forward proposals on how shipping should reduce its CO2 emissions. The two countries' administrations may have differing approaches, but the fact is they are two countries that were early in putting forward their comments in helping steer the course of events at the IMO. Denmark is also taking some of the credit for the energy efficiency design index, the only piece of mandatory legislation aimed at curbing ships' emissions." LLOYD'S LIST, 29 September 2011, p 2

Maersk still to decide on low-sulphur strategy - By Steve Matthews "Maersk Line is still considering its options as to how to meet new fuel sulphur content regulations coming into force in 2015 for its fleet, including the new 18,000 teu Triple-E containerships, Soren Andersen, head of Maersk Line vessel management, told the Informa Maritime Events Ship Management Business Conference in Copenhagen. He said that when the Triple-E ships were being designed, Maersk looked at several options for fuel and propulsion systems including liquefied natural gas, biofuels, distillates and nuclear power. In the end, Maersk came down in favour of the conventional heavy fuel oil, largely because of the uncertainties surrounding the other options. However, Maersk took the decision to strengthen the vessels to enable the retrofitting of scrubbers, which appears to be the most likely option for cutting sulphur emissions to meet the new requirements." LLOYD'S LIST, 30 September 2011, p 2

European owners follow up USCG warning on low-sulphur fuel - By Adam Corbett "European shipowners are again calling on Brussels to change its mind on adopting tougher regulations on the sulphur content of fuel. The warning comes following concerns voiced by the US Coast Guard (USCG) over the safety of ships switching to low-sulphur fuel while in designated coastal areas. The European Union (EU)'s sulphur directive will require ships operating in European Emission Control Areas (ECAs) to restrict the sulphur content of fuel to 0.1% by 2015 and for all European coastal areas by 2020. The European Community Shipowners' Association (ECSA) said this week that the move goes beyond the requirements of the international agreement under Marpol Annex VI and makes no provision for the rule to be changed if there is not enough low-sulphur fuel available." TRADEWINDS, 30 September 2011, p 54

Finland wants sulphur flexibility "Finland's government may be on course for a tussle over the European Commission's maritime fuel sulphur content timetable. Under EU proposals published on 15 July, shipping must use 0.1% sulphur fuel from 2015 in the Baltic and North Seas and the English Channel SECAs (Sulphur Emission Control Areas). This is a reduction from the present requirement of a maximum 1% sulphur. It compares with a 1.5% maximum permitted in Finnish territorial waters and its economic exclusion zone. Finland's environment minister, Ville Niinistö of the Green Party, told Fairplay last month: "We are totally behind the directive, but we are an export-driven country and take these matters seriously. So, there should be a cost-effective solution agreed, with flexibility built in for all the countries affected." FAIRPLAY, 6 October 2011, p 30

Maritime UK puts \$5.6bn price tag on low-sulphur rules - By Craig Eason "A submission to a UK parliamentary inquiry into the impact of low-sulphur rules says the changes they could cost £3.6bn (\$5.6bn) to shipping within 200 miles of the UK, and have far reaching consequences. The industry consortium Maritime UK has handed over a submission that warns of the potential side effects of proposed plans to reduce the sulphur content of marine fuel in emission control areas. It said the impacts would be further reaching than just on the shipowners. The UK Transport Select Committee called for submissions last month as it prepared its evidence ahead of the British government implementing pending rules changes from Brussels." LLOYD'S LIST, 10 October 2011, p 2

Intertanko leans towards CO2 fund for shipping - By Craig Eason "Intertanko has softened its position on the development of market-based measures aimed at curbing shipping's CO2 emissions. The tanker industry lobby group has said in the past that the shipping industry did not need MBMs, saying high bunker prices would have a better effect. But in a statement from its recent council meeting it is now of the opinion that if a MBM should be required, it should be implemented through an international regime, be simple to enforce and monitor, provide sufficient transparency and not result in a disproportionate financial or operational impact on the industry. Therefore it believes a greenhouse gas fund would be better suited than a trading scheme." LLOYD'S LIST, 10 October 2011, p 2

Cruise lines lead search for sulphur emissions loopholes - By Eric van den Berg and Craig Eason "Creative definition of IMO rules could see shipowners avoid costly low-sulphur fuel bills. Cruise lines are leading the march to find a loophole to international emissions regulations that would allow vessels to continue to burn high-sulphur fuel in emissions control areas. Compliance of the forthcoming low-sulphur rules are expected to collectively cost the shipping industry billions of dollars annually and any interpretation of the the Marpol Annex VI rules that offer an escape clause to shipowners are likely to be viewed with interest across the industry." LLOYD'S LIST, 12 October 2011, p 1

Supply chains look for green help - By Konstantin Tsolakis "Closer collaboration between shipowners and shippers can cut emissions and costs. "The international nature of shipping does not allow for purely regional solutions on any issue that concerns the sector. Naturally, this holds for greening maritime supply chains too, a conference organised by the European Shippers' Council on 28 September in Brussels heard. "Emissions from shipping remain high, so it is very important to discuss, both within the EU and among international governments, how to mitigate them," Laure Chapuis, member of the cabinet of European Commission vice-president and commissioner for transport Siim Kallas, said in her welcome address. Transport is becoming increasingly global and complex. What supply chains need to reduce emissions are "good management and an 'on-time' mentality", Chapuis said." FAIRPLAY, 23 October 2011, pp 32-33

Going green the big issue for Tsavlis - By Adam Corbett "Salvage companies need bigger awards to help protect the environment, says the incoming ISU president. Andreas Tsavlis is the new president of the International Salvage Union (ISU) and he is already lining up talks with protection-and-indemnity (P&I) clubs on improving environmental awards for salvors. Preventing environmental damage in salvage awards is a contentious issue and Tsavlis is determined to get all sides of the industry talking, even though their positions appear to be polarised." TRADEWINDS, 14 October 2011, p 42

Food group cuts carbon footprint with switch from road to barge - By Roger Hailey "Food and drink group Princes is further cutting its carbon footprint by using a Manchester Ship Canal barge service out of the UK northwest box hub of Liverpool. Princes had previously reduced its carbon footprint by importing cargo through the port of Liverpool as a gateway, cutting inland haulage to reduce road miles and congestion. Last year, Princes and Peel Ports signed an initial agreement that removed 3,000 teu per year from road to barge along the canal to the inland port at Irlam, following the early success of the project. Princes has now increased this commitment and expects that through utilising waterways it will remove 6,500 teu, saving up to 500,000 road miles per year and cutting its carbon footprint by more than 500,000 kg of CO2 per year." LLOYD'S LIST, 17 October 2011, p 7

Study shows air pollution plummets with low-sulphur fuels "New clean fuel regulations in California and voluntary slowdowns by shipping companies have substantially reduced air pollution caused by near-shore ships, according to a new study published online in *Environmental Science & Technology*." MER, October 2011, p 45

Ferry operators warn over sulphur limits - By Roger Hailey "UK ferry operators have warned Westminster MPs that 0.1% sulphur limits for fuel from 2015 in the North Sea and English Channel will see service cuts and route closures. The House of Commons Transport Select Committee heard evidence from P&O Ferries fleet director John Garner that the higher cost of ultra-low sulphur fuels as part of the Marpol Annex VI amendments means an increased burden on the shipping industry of up to £3.6bn (\$5.8bn). The European Commission is adopting the voluntary regulation through a directive but will also extend the emission control areas to the Mediterranean by 2020. Ship operators currently have to meet a 1% sulphur level in fuel. Mr Garner, who sits on the board of the Shipping Emissions Abatement and Trading group, said that companies would be forced to increase prices and cut costs elsewhere in response to rising fuel bills." LLOYD'S LIST, 26 October 2011, p 2

Carnival backs plan for sulphur 'averaging' - By Eric van den Berg "Carnival UK chief executive David Dingle has come out in support of a cruise industry proposal that would allow vessels to continue to burn high-sulphur fuels in emission control areas. The proposal, an initiative driven by the US-based trade group Cruise Lines International Association, was first reported in Lloyd's List earlier this month. CLIA argues under existing international maritime law, vessels have the right to burn high-sulphur fuel in ECAs, as long as the average emission impact over the course of an entire voyage do not surpass stated limits." LLOYD'S LIST, 27 October 2011, p 5

ECA supply challenges looming "With the North American ECA set to be enforced in less than a year, there are still questions as the whether the bunkering sector is adequately prepared for the changes and challenges that lie ahead." BUNKER BULLETIN, Sep/Oct 2011, pp 16-17

Low sulphur fuels availability in question "With the maritime industry's drive towards cleaner fuels moving forward, the question is: will there be enough low sulphur fuel to meet demand triggered by stringent product requirement?" BUNKER BULLETIN, Sep/Oct 2011, pp 26-27

[Further calls to launch Green Climate Fund in Durban](#). United Nations Secretary-General Ban Ki-moon has said a Green Climate Fund must be launched in Durban and that governments must find a compromise on the Kyoto Protocol on climate change to make a broader comprehensive climate agreement possible in the future. Sustainable Shipping, 15 November 2011.

[Shippers object to footing \\$20 billion GHG bill](#). The Global Shippers' Forum (GSF) says it is a "top priority" to avoid an ineffective approach to tackling maritime greenhouse gas (GHG) emissions which could leave shippers footing the bill of up to \$20 billion a year. Sustainable Shipping, 15 November 2011.

UK urged to include shipping in gas targets - By Steve Matthews "Shipping should be included in UK government targets and associated carbon budgets to slash greenhouse gas emissions by 2050, a new report published today by the Committee on Climate Change recommends. The independent advisory group calls on the government to actively promote further international measures to reduce shipping emissions. The UK Chamber of Shipping welcomed the report but emphasised the importance of global solutions for reducing carbon emissions from shipping. The CCC will make formal recommendations to the government in March as to how shipping should be included in government targets. Under the Climate Change Act the government is required to make a firm decision by the end of 2012 on the inclusion of shipping and aviation." LLOYD'S LIST, 3 November 2011, p 2

Call for 2020 date for low-sulphur deadline - By Roger Hailey "Dutch shipowners are pushing for a postponement of the 2015 deadline for the introduction of a 0.1% sulphur limit on bunkers for the North Sea and Baltic Sea areas, arguing that unproven technology for limiting vessel emissions could put ships at risk. The president of the Royal Association of Netherlands' Shipowners (KVNR), Tineke Netelenbos, is calling instead for a 2020 introduction date, which would coincide with European Union plans to extend the emission control areas to all the trading bloc's coastal regions. "We are told that there are all sorts of technical means to help shipowners to reduce sulphur, but it is not proven technology. For example, we are at the starting phase of [exhaust gas] scrubber technology, and we think shipowners need more time, because it is impossible to build in scrubbers and other kinds of equipment by 2015," says Mrs Netelenbos." LLOYD'S LIST, 3 November 2011, p 5

LNG to fuel 5% of fleet by 2020 "Emissions rules will make widespread use of LNG fuel attractive. As many as 10,000 ships could have been built or converted to use LNG as fuel by 2020, according to a forecast published last month by Indian consultancy MEC Intelligence. Its general manager, Sidharth Jain, told Fairplay that the estimate is "based on the assumption that IMO will not delay ratification of the SOx NOx regulations". If it does, he went on, "the projected size of the market will be about 5,000 vessels". The organisation notes that this represents more than 5% of the world fleet, providing opportunities for "companies in all aspects of the maritime value chain. Oil majors, terminals, ports, bunker suppliers, service companies, component producers, vessel owners and charterers need to rethink their offerings." FAIRPLAY, 3 November 2011, p 27

UK concern over fuel directive - By Paul Gunton "A proposed European Commission directive on sulphur content for fuel "goes beyond the measures contained in [MARPOL] Annex VI" and "gives rise to a number of concerns," says the UK parliament's European Scrutiny Committee (ESC) in a report published last week. It has assessed the directive as being "politically important". The report followed the committee's most recent meeting, last month, when it considered two European Commission documents relating to sulphur content in fuel, one of them a draft directive that proposes amendments to its existing Directive 1999/32/EEC. The new version's aims "expressly include aligning it with IMO rules on fuel standards", the report notes, yet "there are a number of areas where the Commission's proposal deviates from the international measures," the report says and lists four such areas." FAIRPLAY, 3 November 2011, p 29

Green levy could put \$75 on tonne of fuel - By Adam Corbett "Discussion on a possible \$25bn shipping carbon fund that will add up to \$75 per tonne on the price of bunker fuel is set to be the key issue for shipping at the Cop 17 climate-change conference in Durban later this month. The proposal stems from a report by the World Bank suggesting that shipping could be tapped through a levy on bunkers for a significant contribution to a \$100bn Global Green Fund intended to finance carbon-reduction projects in the developing world by 2020. The industry, through the International Chamber of Shipping (ICS), has already backed the idea of a fund, although it insists the bunker levy must be in line with shipping's contribution to carbon emissions." TRADEWINDS, 11 November 2011, p 39

ESI sulphur baseline adjusted "Changes are on the way for the Environmental Ship Index (ESI) website – <http://esi.wpci.nl> – all with the aim of stimulating the use of cleaner fuel. In calculating the sulphur oxide (SOx) element of the ESI score, sulphur content of 0.1% has been defined as the baseline below which extra points are given. This value will be raised to 0.5% as from 1 January 2012 to promote in a very visible way the use of low-sulphur fuel and reward its use accordingly." PORTS AND HARBORS, Nov/Dec 2011, pp 34-35

Reduced fuel consumption could save \$50bn by 2020 - By Steve Matthews "Reductions in fuel consumption resulting from full implementation of the International Maritime Organization's Energy Efficiency Design Index and Ship Energy Efficiency Management Plan could generate industry-wide savings of \$50bn in 2020 and \$200bn by 2030. A study commissioned by the IMO and carried out by class societies Lloyd's Register and Det Norske Veritas found that by 2020, the new measures agreed by the IMO in July would result in an average reduction of some 151.5m tonnes of carbon dioxide emissions annually. By 2030 annual savings would rise to 330m tonnes of CO2. A business as usual scenario would see CO2 emissions from international shipping increase from the estimated 870m tonnes in 2007 to about 1.4bn tonnes by 2030 and 2.6bn tonnes by 2050. The fuel cost savings are based on the industry's current use of 80% residual fuels up to 2020, but a wholesale switch to distillate fuels after that due to new sulphur emission rules due to come into force in 2020. According to Eivin Vagslid, head of the IMO air pollution and climate change section, it is expected that these percentages will reverse, with 80% of fuel consumption after 2020 being more expensive residual fuels, generating the huge potential cost saving from application of the EEDI and SEEMP." LLOYD'S LIST, 15 November 2011, p 2

ICS to brief UN climate change conference - By Steve Matthews "The International Chamber of Shipping is submitting a briefing to the UN Framework Conference on Climate Change taking place in Durban from November 28, stressing the contribution that shipping is committed to making towards cutting greenhouse gas emissions. It highlights the groundbreaking achievement of the International Maritime Organization agreement in July to adopt technical measures to reduce emissions and the importance of allowing the IMO to continue taking the lead with regard to international shipping achieving further reductions. "The international shipping industry is firmly committed to reducing its CO2 emissions by 20% by 2020, with significant further reductions thereafter. However, the Durban climate change conference needs to give the IMO a clear mandate to continue its vital work to help us deliver further emission reductions through the development of market-based measures," said ICS secretary-general Peter Hinchliffe." LLOYD'S LIST, 15 November 2011, p 2

Owners could face enforced emissions targets - By Adam Corbett "An upcoming climate-change meeting could set further reduction targets if a recent IMO study is anything to go by. Shipowners still face the threat of carbon emissions-reduction targets being imposed by the upcoming climate-change conference at Durban (COP 17) despite shipping being the first industrial sector to approve regulation to curb greenhouse gases. A survey commissioned by the International Maritime Organisation (IMO) and released this week shows that while its new carbon regulation will dramatically improve the fuel efficiency of ships, it will not be enough to stop overall emissions from increasing. There is also some concern that additional market-based incentives to reduce emissions further may take too long for some governments at the Durban meeting." TRADEWINDS, 18 November 2011, p 38

Finns losing low-sulphur argument - By John Pagni "Finland maritime's concerns about 0.1% sulphur fuel limit again meet political opposition. Satu Hassi, Finnish Green MEP and deputy chairman of the European parliament's committee on the environment, called a lunch meeting in Helsinki on 3 November to discuss the Baltic Sulphur Emission Control Area (SECA). Attending her event was special guest Thomas Verhaye, head of the European Commission's industrial emissions, air quality and noise division, stakeholders and the media. Verhaye pointed out that all the Baltic countries had voluntarily requested the limit in a joint proposal approved unanimously by the IMO. But speaking to Fairplay, he said that

while the European Commission is "fully committed both on the timing and the standard", it is "prepared to work to find solutions that could soften impacts". FAIRPLAY, 24 November 2011, p 25

Measuring up against competitors - By Craig Eason "If, or when, shipping gets dragged into the European trading scheme, those that have begun the measurement, reporting and verification process will be the early winners. Luckily for shipping, the ability to measure carbon emissions early is key to getting ahead in an ETS. If shipping does get pulled in, any owner that has begun to measure CO2 emissions - or to be commercially exact, fuel consumption - will benefit. The first stage of bringing an industry into the ETS has been to measure overall emissions from a benchmark year; then get companies to measure, report and verify on an annual basis what their actual emissions are. The aviation industry is being measured on fuel consumption to assess greenhouse gas emissions. Industry experts have told Lloyd's List that if shipping follows into an ETS, they see no reason why the same approach will not be taken with shipowners, or vessels. There are a handful of companies that are established as confirmed emissions verifiers, and many consultancies have emerged to help in explaining the MRV process." LLOYD'S LIST, 29 November 2011, p 4

Inconsistencies revealed in box shipping CO2 calculators - By Craig Eason "Carbon emissions calculations for individual containers shipped by lines are set to be tightened after research has revealed huge variations in results. Carbon calculators are being used by some major container lines to give shippers an idea of the carbon emissions associated with their logistics chain. The calculations are based on methodologies created by the industry-led Clean Cargo Working Group, a consortium of businesses under the auspices of the non-profit organisation Business for Social Responsibility, which is looking at ways of reducing businesses' carbon footprints. The decision to tighten the methodology comes after Denmark's Seaintel, an independent consultant, compared seven publicly available calculators and found they differed greatly even when used on the same containers and vessels, due to lines' tendency to share slot capacity." LLOYD'S LIST, 29 November 2011, p 7

Call for standardised environmental rating tools - By Craig Eason "As there is increased pressure on shipping to deliver a measure of its environmental footprint, there is increased pressure for an umbrella organisation to emerge to co-ordinate current efforts. The Clean Cargo Working Group is a grouping of shippers, shipping lines and manufacturers interested in being able to first measure, and then improve, the carbon footprint of the logistics chain. It is a division of the San Francisco based non-profit group Business for Social Responsibility and was launched about seven years ago as a result of manufacturers' lack of awareness of their logistics footprint. As well as the methodology for a carbon emissions calculator, it is looking at calculations of NOx and SOx emissions guidelines on verification, particularly with what other groups are doing. It is also aligning its work with other groups, forging ties with other initiatives on measurement and standards. As Lloyd's List has previously reported, shipowners have a bewildering array of measurement standards developing when it comes to environmental performance." LLOYD'S LIST, 29 November 2011, p 7

ICS in fresh drive to get support for IMO at Durban - By Craig Eason and Steve Matthews "Shipping and environmental groups meeting in Durban have launched a fresh campaign to get the industry's work in curbing carbon dioxide emissions recognised to prevent regional measures being developed. As the annual debates for the UN Framework Conference on Climate Change kick off, the International Chamber of Shipping has teamed up with the environmental lobby groups and charities WWF and Oxfam to tell the Durban conference it needs to give the IMO the endorsement to continue to find an international solution to tackling shipping's greenhouse gases. The UNFCCC is not expected to produce any meaningful decision on how shipping should be made to contribute to either the international compensation fund that was agreed last year in Cancun, or the overall targets that the bodies within the UNFCCC are trying to achieve. However, the ICS is keen to see a message come from the UNFCCC giving an endorsement to the work of the IMO." LLOYD'S LIST, 30 November 2011, p 1

Low-sulphur toolbox is empty, says Interferry - By Craig Eason "Interferry has highlighted a lack of options for shipowners to meet the pending low-sulphur emission rules of 2015, ahead of a European meeting to refine its sulphur directive. The trade association has joined a large number of shipping and manufacturing organisations in northern Europe who believe the amended rules written by the International Maritime Organization and due to be underscored by an updated European directive will lead to higher fuel bills causing modal backshift and shipowner bankruptcies. In emission control areas, such as the North and Baltic seas, vessels will need to use fuel of 0.1% sulphur or lower in 2015. The rest of the world drops to 0.5% in 2020, unless a review reveals a lack of low sulphur fuel, that will see the move delayed to 2024. The rules allow for abatement technology or the use of liquid natural gas." LLOYD'S LIST, 30 November 2011, p 2

A fifth of vessels avoid SOx rules - By Steve Matthews "A significant minority of about a fifth of ships are not complying with European requirements on sulphur emissions, according to research by the Seafarers' International Research Centre at Cardiff University, which has called for more effective enforcement of sulphur regulations. This is among the findings of an interim report on the effectiveness of international regulation of pollution controls: the case of the governance of ship emissions funded by the UK Economic & Social Research Council and supported by the UK Maritime & Coastguard Agency. The research is based on ships calling at ports in the UK and Sweden. The research project continues through to the end of 2012. The report says that, based on its evidence, it is clear that a minority of berthing ships in the UK and Sweden are continuing to burn non-compliant fuel." LLOYD'S LIST, 20 December 2011, p 2

Last Word: Count your carbons "The ever-helpful port of Los Angeles has launched an online Carbon Calculator, allowing port operators to see in an instant how much they contribute to global warming. The calculator can help anybody who does business in ports and wants to reduce emissions. However, the fact that the calculator originated in environmentally conscious California could make some shipowners nervous. Many will recall that the Golden State led the way in ever more far-reaching sulphur-emissions regulations. Carbon dioxide is probably next in line for a governmental crackdown, so Last Word recommends using the calculator now, while it is still fun and carefree. Point your browser at http://wpci.nl/projects/carbon_footprinting.php." LLOYD'S LIST, 20 December 2011, p 12

Getting 2020 vision after Durban - By Craig Eason "After the Durban climate meeting, there may be good news for the industry, as it could see a number of measures that are being developed separately now begin to unify. However, the next eight years could also see the opposite happening, as Europe pushes to achieve its own goals and regional carbon measures emerge elsewhere. Just hours after the announcement of the Durban Platform for Enhanced Action, it had already been dubbed the platform for enhanced inaction, with the agreement to find agreement by 2015 being seen as the agreement to disagree at a later date. The Durban meeting, the 17th of the signatory parties of the broad UN Framework Convention on Climate Change, did little to directly answer the questions about what role the shipping industry will play in the global reduction of greenhouse gas emissions and mitigation of climate change." LLOYD'S LIST, 21 December 2011, p 4

Europe still looking at its options following extension - By Craig Eason "As aviation is drawn into the EU ETS and creates problems, this could have implications on shipping. The agreement by the European Union to extend its commitment period to the Kyoto Protocol is reportedly part of the behind-the-scenes bargaining to draw some of the developing countries into discussing the next level of commitments through the Durban Platform. One of the notable silent countries in the Durban talks was the US. The general elections next year saw the US negotiators take a distinctly low profile. Having never signed up to Kyoto - and had it objected to the development of a future platform - it was damned if it did and damned if it did not. Keeping quiet was a good tactic for a president who did not need to be in the spotlight. As part of Europe's efforts to take an economy-wide approach to carbon reduction, and to meet its self-declared 20% commitments at the UNFCCC debates, it has now drawn aviation into the Emission Trading Scheme." LLOYD'S LIST, 21 December 2011, p 4

IMO: No mandate needed but green light welcome - By Craig Eason "While measures for tackling emissions have been created by the organisation, these have not been directed by the UNFCCC. The Kyoto Protocol left out shipping and aviation deliberately, leaving it up to the IMO and the International Civil Aviation Organization to resolve. The EU, which developed the Emission Trading Scheme as part of its response to committing to Kyoto, has now drawn aviation into it. The industry is waiting to see if it will do the same with shipping or find another solution. During the Durban meeting, the UNFCCC welcomed the work already done at the IMO; after all, it has created the first and only pan-industry set of measures for tackling emissions. This in itself should be seen as the green light for member states when they convene at the IMO for the next MEPC to push ahead with finding a suitable market-based measure for shipping before anyone else does." LLOYD'S LIST, 21 December 2011, p 4

Maritime Blogspot: More twists and turns for new year energy trends - By Hal Brown "Canada announced in December it was withdrawing from the Kyoto protocol, the legally binding carbon emissions-reduction treaty. The country said it could not meet Kyoto's reduction targets and argued that the agreement was futile, given that the US, the world's biggest polluter, had refused to sign. Canada's petulance caused such a stir among the 200 nations at the Climate Change Conference in South Africa that even China, a new convert to pollution reduction, called the move "ridiculous". Of course, there is another reason for Canada to dodge its commitment to cutting carbon pollution. The so-called 'big' country has huge oil reserves, second only to those of Saudi Arabia." LLOYD'S LIST, 21 December 2011, p 6

Green measures gaining ground - By Craig Eason "The technical landscape for the maritime industry has been dominated over the last year with measures for reducing CO2 from shipping. These measures are part of the International Maritime Organization's response to calls for the shipping industry to help reduce the impact of climate change. They have also been derived to create an equal rule for all ships, regardless of flag or trade, in a bid to prevent regional climate change measures impacting shipping and creating undue complications in the industry. Among the measures is a voluntary energy efficiency operational indicator, a formula aimed at helping crews and shipmanagers operate vessels in the most fuel-efficient manner. The other two measures are mandatory and come in force in 2013. They are the energy efficiency design index for newbuildings, a programme that will push ship designers to create more fuel efficient vessels, and the ship energy efficiency management plan, which is an onboard guide and check, somewhat similar to, and likely to be part of, the international safety management plan. These three measures are likely to be complemented by a fourth, possibly a levy or cap-and-trade system, aimed at raising funds from shipping as part of its contribution to cutting global emissions. The debate is still raging, with continued fear that regional trading schemes may win over a global ones." LLOYD'S LIST, 22 December 2011, p 13

2012

Green shipping is profitable "Many see the first extra-territorial and unilateral emissions reduction legislation, agreed by the IMO in July, as a watershed moment both for shipping and climate change. Under increasing pressure to join global efforts to reduce CO2 emissions, the IMO adopted the Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP) as part of MARPOL Annex VI; both become enforceable in 2013. Although the regulations should be deemed a significant step forward, EEDI and SEEMP alone will not be the last carbon regulation shipping will face, with both United Nations Framework Convention on Climate Change (UNFCCC) and the EU deliberating over market-based measures." FAIRPLAY, 5 January 2012, p 22

France joins SOx battle "France has become the latest EU member country to complain about impending regulation of sulphur levels in marine fuels. French ferry companies are being asked to carry out impossible instructions under the proposed revised EC Sulphur Directive, transport minister Thierry Mariani told delegates at a conference in November. The 0.1% limit on sulphur emissions that the European Commission's revised directive would impose on ships in the Baltic Sea, North Sea and English Channel from 1 January 2015 would, in Mariani's view, increase ship operating costs and force companies that use 'sea motorways' to return to road transport." FAIRPLAY SOLUTIONS, January 2012, p 7

Timely reminder on NOx "Class NK's announcement at the end of December that it had issued its first statement of fact for Tier III NOx reductions to a marine diesel engine incorporating a selective catalytic reduction (SCR) system is a timely reminder that the Tier III limits are due to come into force in 2016 for vessels operating in emission control areas (ECAs)." FAIRPLAY, 19 January 2012, p 34

EU committee proposes sulphur content amendments - By Roger Hailey "Members of the European Parliament transport committee have suggested important but non-binding amendments to the proposed Brussels directive for a 0.1% sulphur content limit in marine fuels from January 2015. The committee's suggestions include recognising the International Maritime Organization's lead role in setting sulphur limits, an end to the five-year extension for passenger vessels and "a certain tolerance" towards maritime operators who cannot source the correct fuel. Europe's maritime industry argues that alternative greener bunkers, such as liquefied natural gas, will not be available in time and that scrubber technology is not yet proven." LLOYD'S LIST, 20 January 2012, p 2

Brussels starts quest for regional emissions strategy - By Craig Eason "The European Commission has begun its long-threatened drive to find a regional strategy to reduce shipping's CO2 emissions, despite industry calls to focus on reaching an international solution. Brussels launched a three-month consultation seeking comment on a range of potential measures that could curb shipping's emissions to meet the European Union target to reduce its industrial CO2 output by a fifth by 2020. European Climate Action spokesperson Isaac Valero confirmed the commission aimed to select a final proposal by the end of the year. It has done much of the preparatory work as it waited to see whether international efforts to find solutions would succeed. EU Commissioner for Climate Action Connie Hedegaard has long insisted that the preferred option is an international one, but said Europe would find its own solution if the IMO and the UN Framework Convention on Climate Change failed to make significant headway." LLOYD'S LIST, 24 January 2012, p 1

UK to push for regional carbon curbs rather than wait for IMO - By Craig Eason "Shipping has reacted angrily to accusations that its insistence on an international cap-and-trade solution to curbing its carbon emissions is a delaying tactic. A report from the UK parliamentary select committee on energy and climate change has suggested that discussions at the International Maritime Organization are progressing too slowly to be able to provide a meaningful reductions to shipping's CO2 emissions. The committee report suggests the European Union should push ahead with its plans for finding a solution for shipping, recommending the industry's possible inclusion in the region's emissions trading scheme or a cap-and-trade scheme. Shipping's contribution could be up to \$15bn annually and put towards the Green Climate Fund that is being set up as part of international efforts to mitigate and offset climate change. It cites the recent inclusion of aviation into the EU ETS as a useful model for the shipping sector." LLOYD'S LIST, 30 January 2012, p 1

[New study shows huge environmental and economic benefits of slowing down shipping.](#) Hellenic Shipping, 28 February 2012.

Chamber president hits out over emissions debate - By Janet Porter "UK shipowners have rounded on British politicians for suggesting that regional regulation on ship emissions would be more effective than a global solution. Chamber of Shipping president Michael Parker last night expressed his dismay over a recent report that called for the European Union to step in with a local scheme to reduce pollution from ships in the absence of sufficient progress at international level. Addressing guests attending the chamber's annual dinner, including shipping minister Mike Penning, Mr Parker said the International Maritime Organization should be left in charge, and said alternative proposals were both ill-informed and

misguided. "Make no mistake: the shipping industry understands its responsibilities and takes them seriously," said Mr Parker." LLOYD'S LIST, 7 February 2012, p 2

The potential for CO2 capture and storage in EU refineries "CO2 capture and storage (CCS) is seen as one of the most promising routes to a major reduction in CO2 emissions to the atmosphere. Its deployment on a large scale would make it possible to continue using fossil energy resources while meeting the challenging emission reduction targets that are widely believed to be necessary to avoid serious climatic consequences, if enough resources – both in terms of capital and engineering capacity – are made available." CONCAWE REVIEW, Autumn 2011, pp 4-7

ICS opposes carbon proposal - By Janet Porter "A proposal from The Bahamas to specify carbon emissions from individual ships has been criticised as unworkable by the International Chamber of Shipping. The Bahamas' recommendation has been made with the apparent intention of offering an alternative to market based measures under consideration at the International Maritime Organization. The ICS, whose national shipowner associations represent 80% of the global merchant fleet, is concerned that some might see it as a superficially attractive means of stopping the adoption of a market-based measure scheme. "If a ship's CO2 allowance was exceeded during the time period specified, it would have to go off-hire and a second ship chartered as replacement," said ICS chairman Spyros Polemis following a board meeting at which members confirmed that such an approach was very worrying and should be opposed." LLOYD'S LIST, 8 February 2012, p 2

Scary Prospects – By Unni Einemo "After a deteriorating business climate in 2011, many fear 2012 will be even worse. Speculation about how to handle the transition to a 0.10% sulphur limit in ECAS in 2015 is likely to become more pressing in 2012." BUNKER BULLETIN, January/February 2012, pp 12-13

UK Chamber to push for incentives on exhaust cleaning - By Craig Eason "UK shipping is to push for new incentives from government as it signals a readiness to talk about putting cleaning systems on ships in an effort to meet tough sulphur rules. The UK Chamber of Shipping hopes talks between shipowners, manufacturers and legislators will help to end an impasse over the pending low sulphur emission rules in northern European waters. It says there has been progress in discussing options to ease the difficulties faced by owners that will be forced to either use more expensive fuels or install exhaust cleaning technologies when a 2015 deadline stipulates sulphur emissions of 0.1% in the emission control areas. The rules were written and agreed by the International Maritime Organization and are in the process of being written into European Union legislation." LLOYD'S LIST, 22 February 2012, p 1

Industry demands more time to launch CO2 measures - By Craig Eason "A group of leading shipping associations want the industry to have time to implement and analyse the benefits of agreed CO2 reduction tools before others are made mandatory. Ahead of next week's marine environment protection committee at the International Maritime Organization, BIMCO, Intercargo, Intertanko and the International Chamber of Shipping say they need more time for measures agreed at last year's MEPC to take effect. Last year the IMO agreed mandatory emissions-curling measures on ship design and on ship operations to come into force in 2013. The round table of associations argues that market-based measures are not justified without making time to allow previously agreed measures to take effect first." LLOYD'S LIST, 23 February 2012, p 2

Japan tables new scheme on pollution - By Adam Corbett "A fresh proposal is set to go before the IMO that calls for heavy fines on ships that do not comply with minimum efficiency rules. A fresh initiative on reducing ship emissions that will see ships fined heavily for failing to meet minimum efficiency standards is set to go in front of regulators and is already attracting controversy. Japan has teamed up with the World Shippers' Council (WSC) on the proposal, which it has named the Vessel Efficiency Incentive Scheme (EIS) and which will be presented to the International Maritime Organisation (IMO) next week." TRADEWINDS, 24 February 2012, p 54

Sekimizu wants CO2 market-based measure - By Craig Eason "International Maritime Organization secretary-general Koji Sekimizu has called on member countries to work together to find a suitable market-based measure to curb shipping's emissions by next year. Mr Sekimizu used his opening speech of this week's marine environment protection committee to call on its participants to intensify efforts to make progress in deciding on a global market-based measure which can be applied to all ships, saying a decision on which solution is most suitable needs to be made by next year. MEPC participants will be looking at a number of potential market based measures that can be applied to shipping, including an international emissions trading scheme and a levy that can be applied to fuels. "This is a task of considerable magnitude and complexity, which requires additional funding if it is to be completed in the current biennium," Mr Sekimizu told the committee. "I therefore urge both members and organisations to make financial and human resource contributions towards the work that needs to be carried out." He also said that the IMO should align its deadlines with those set out by the UN Framework Convention on Climate Change which met in Durban at the end of last year." LLOYD'S LIST, 28 February 2012, p 2

China slams EU proposal for emission trading - By Max Lin and Craig Eason "China has vowed to oppose inclusion of shipping in any European Union carbon emission trading scheme, saying that any such a unilateral measure would be against international law. The comments come as the International Maritime Organization spends this week debating potential market-based measures that could be used to curb shipping emissions. "The IMO has been discussing [how to tackle climate changes] for years," said National Development and Reform Commission official Su Wei, China's head of climate change affairs, in a radio interview. "Hopefully, [it] can deal with those issues properly, based on the principles of international law and the UN Framework Convention on Climate Change. A unilateral measure from the EU does not meet the requirements of international law." LLOYD'S LIST, 28 February 2012, p 2

Environmental groups launch fresh drive to enforce slow steaming - By Craig Eason "A consortium of environmental lobby groups is pushing the International Maritime Organization to reconsider its objections to setting mandatory speed limits on ships. The Clean Shipping Consortium consists of lobby groups Transport and Environment and Seas at Risk. It says the trend for shipowners to use slow steaming for economic reasons has had as good an impact on the industry's carbon dioxide emissions as any potential market-based measure. The consortium fears that as the economic downturn ends, shipowners will return to old practices and the potential benefits will be lost. The group was disappointed when the IMO's maritime environmental protection committee quickly rejected discussions on setting speed limits for the world's fleet when it was raised in 2010." LLOYD'S LIST, 29 February 2012, p 2

ICS says 'no' on CO2 "Board members of the International Chamber of Shipping did not mince their words at their London meeting last month to review the IMO's further measures to reduce CO2 emissions. While supporting the Energy Efficiency Design Index (EEDI) for newships, aimed at newships from 2013 to improve efficiency per tonne/km by 20% by 2020, the ICS is completely opposed to applying EEDI to existing ships – a point it will make at the IMO MEPC meeting this week." FAIRPLAY, 1 March 2012, p 30

Emissions deadline looms "In less than six months North America's emission control area (ECA) will force fuel-switching for any vessel coming within 200nm (370km) of shore. With effect from 1 August, fuel inside the zone is required to be 1% sulphur. Then, in January 2015, a much more daunting reduction comes into play: the limit falls to 0.1% sulphur. Jones Act tankers will operate fully within the ECA, cruise players will be heavily affected and vessels on trans-Pacific and trans-Atlantic runs will sail within the ECA for about 10% of their voyages. But even as implementation nears, US government guidance remains lacking. As of last month, the industry had yet to be told how exactly to prove compliance, whether through bunker notes or by other means." p 40

Slowing down is best way to cut emissions - By Adam Corbett "Slowing down ships is the simplest and most efficient way to reduce greenhouse gasses, a new report has concluded. The suggestion that a 10% reduction in speed would lead to a 19% reduction in carbon-dioxide (CO2) emissions was being put to the International Maritime Organisation (IMO), which is meeting this week to refine its recently agreed measures to reduce ship emissions. The report by consultant CE Delft was commissioned by environmental group Seas at Risk and was presented at the Maritime Environment Protection Committee (MEPC). The predicted results are much higher and immediate than those estimated from the IMO's own initiatives, the Energy Efficiency Design Index and Ship Efficiency Management Plan. Seas at Risk's John Maggs said: "Regulated slow steaming can produce emissions reductions by 2030 and 2050 that rival any other reduction option being considered at IMO or European Union level and it can do it with sizeable economic gain." TRADEWINDS, 2 March 2012, pp 38-39

MEPC makes little progress on emissions measures - By Craig Eason "Talks at the International Maritime Organization last week to find a market-based measure to reduce shipping industry CO2 were again bogged down in the same problems facing other UN bodies. Debate has been politically charged as a result of the impasse at the UN Framework Convention on Climate Change due to differing opinions between developed and developing countries over the concept of common but differentiated responsibilities for curbing emissions. At the start of the IMO's week-long Marine Environment Protection Committee meeting, IMO secretary-general Koji Sekimizu said the development of an MBM was of prime importance and called on member states to agree on a potential measure by 2013. However, sources at the meeting told Lloyd's List that there were still some developing countries that disagreed that an MBM was needed at all." LLOYD'S LIST, 6 March 2012, p 2

Demands for permanent slow steaming increase - By Craig Eason "A study of the impact of slow steaming highlights the cost benefits to shipowners and its authors say they will turn to Europe if the International Maritime Organization will not consider mandatory global speed limits. The fact that reducing ships' speeds is an effective and immediate method of reducing fuel consumption and therefore carbon dioxide emissions has been proven over the last two years with the trend for slow steaming, or right steaming as some now call it. As reported in Lloyd's List last week the Clean Shipping Coalition, an alliance of environmental lobby groups, wants to force shipping to remain at a slow speed, thus going some way to meet its CO2 reduction obligations. Seas at Risk and Transport and Environment believe the IMO was wrong in dismissing proposals for mandatory speed limits in 2010." LLOYD'S LIST, 6 March 2012, p 7

Low-sulphur rules to boost demand for gasoil in Europe - By Hal Brown "Regulations on low-sulphur fuel for shipping in Europe will create an "overnight surge in demand" for gasoil shipped into Europe on product tankers, according to a product tanker expert today. Gasoil, also known as diesel, is needed to create higher quality bunker fuel with only a 0.1% sulphur content, the level set for European emissions control areas. However, Europe has a shortage of gasoil and already imports cargoes from the US Gulf, said Clarksons head of tanker research Simon Chattrabutti at naVigate's Chemical and Product Tankers conference in London." LLOYD'S LIST, 7 March 2012, p 9

Emissions plan endorsed "The IMO has welcomed the recent climate change talks in South Africa, despite the conference's failure to produce clear guidelines for transport sectors. The IMO said its own efforts to reduce emissions were well received by the conference and the current emissions reduction plan would continue through 2012. Broadly, the Durban conference effectively agreed to extend the Kyoto Protocol beyond 2012 while parties work on a new agreement by 2012 that will require both developed and developing countries to reduce emissions from 2020." PORTS & HARBOR, March/April 2012, p 37

IMO study aims to find best emissions solution - By Adam Corbett "A \$1m impact study is set to be undertaken by the International Maritime Organisation (IMO) to find the most suitable market-based measure (MBM) to help shipping reduce its carbon emissions. It was agreed last week the in-depth review will be undertaken by an independent consultancy and monitored by an IMO steering committee. Inside sources say the study will have to be completed in the next year and could cost the London-based regulator anything between \$500,000 and \$1m. The IMO has said it will choose an MBM by 2013. There are several options on the table for consideration but it is unclear how many will progress to the review." TARADEWINDS, 12 March 2012, p 55

Smoking is bad for you "Once again this issue of MER has a focus on emission control whether by improved turbocharging techniques, use of the right type of antifouling, or the concerns expressed by the International Chamber of Shipping about the way legislation may be heading. Now the IMarEST, which is to hold two conferences on aspects of the problem later this year, has highlighted another element in the pollution equation – black carbon (BC) smoke. This is the name given to solid particles emitted during incomplete combustion and is also referred to as 'soot', 'elemental carbon' and 'graphite carbon'." MER, March 2012, p 2

EU ministers disagree on fuel proposals - By Craig Eason "Environment ministers in Europe have yet to agree to proposals to ban marine fuels containing more than 3.5% sulphur, and to extend the range of emission control areas for some ship types to all European waters. A meeting of member states' permanent representatives to the European Council will now work through the document, ahead of it being debated in the parliament on March 21. The detailed debate stems from the belief among some European member states that the sulphur directive should match the International Maritime Organization's new rules on sulphur, as written into Annex VI of the marine pollution convention." LLOYD'S LIST, 16 March 2012, p 4

Divisions undermine MEPC 63 - By Girija Shettar "The debate on market-based measures (MBMs) ground to a halt at the 63rd session of the Marine Environment Protection Committee (MEPC) this month. China and Brazil in particular were strongly opposed to MBMs and committed to the 'common but differentiated responsibilities' (CBDR) approach. Set under the Kyoto Protocol, this would exclude certain fleets from paying for greenhouse gas emissions. According to an industry participant: "The IMO is not going to make progress on this until the decision-makers at the UN's Framework Convention on Climate Change either rule that shipping is excused from the CBDR on the grounds that it is a global industry or replace Kyoto, thus freeing the IMO to develop its own regulatory process for shipping." FAIRPLAY, 15 March 2012, p 26

US must toe the line over emissions regulations - By Craig Eason "International Chamber of Shipping chairman Spyros Polemis has used the opening of CMA 2012 to warn against the US going it alone and ignoring international maritime rules. He said the trend for the US to create rules that were more stringent than international ones, then allow member states to create their own variations, created a chaotic regulatory landscape. "When speaking in the US it is always important to stress that we are a global industry requiring global rules," said Mr Polemis. "If major trading nations such as the US adopt rules that are at variance to those agreed by governments at IMO we have chaos, and if the individual US states decide to implement their own rules in conflict with federal requirements, it is even worse, we have double chaos." LLOYD'S LIST, 20 March 2012, p 2

Green grants for SMEs - By Felicity Landon "This unique project is offering SMEs in the east of England a grant of up to 30% if they switch containers that would have otherwise gone by road on to rail. The Haven Gateway secured nearly £3m of European Regional Development Fund money towards the project, and the idea is to move 30,000 boxes on to rail. The project is expected to eliminate at least 11.7m kg of carbon dioxide from the logistics supply chain." LLOYD'S LIST, 22 March 2012, p 12

Shipping must accept high price of low-sulphur fuel - By Liz McCarthy and Craig Eason "DNV head of maritime Tor Svensen has debunked the notion that there will be too little low-sulphur fuel available for shipping in emission control areas from 2015. Rules from the International Maritime Organization that are to be copied into a new regulation by the European Commission this year will force all ships operating in ECAs to

use fuel with a sulphur content of less than 0.1% from 2015. The North American coastline will also be an ECA by 2015, subject to the same limits." LLOYD'S LIST, 23 March 2012, p 1

Auto logistics players call for realistic regulations - By Roger Hailey "Europe's auto logistics supply chain operators have called for more realistic regulations limiting the sulphur content of marine fuels and for harmonised rules on vehicle transporter weights. The Association of European Vehicle Logistics (ECG) made its two-pronged plea while hosting a "dinner debate" in the European Parliament, whose audience included four prominent members of the European Parliament and European Commission officials. ECG president Costantino Baldissara repeated the association's policy line, telling the audience: "We believe that the tight new limits due to come into effect in 2015 in the Baltic Sea, the North Sea and the English Channel will drive up marine fuel prices, powering a modal shift from sea to land in direct contradiction of European Union environmental policy." LLOYD'S LIST, 26 March 2012, p 4

Breathing space for IMO's CO2 measures - By Craig Eason "Any market-based measure from the European Commission aimed at curbing shipping's carbon dioxide emissions will not come into force until 2017, giving breathing space to find an international solution. The commission had given the International Maritime Organization until the end of last year to come up with a global solution that will curb shipping's CO2 emissions. By that time the IMO had managed to produce only mandatory rules on improved ship designs and the use of an energy efficiency management plan on existing tonnage. European Commission emissions policy co-ordination officer Heiko Kunst said that while the commission was working on its own solutions, its preference was to find an international measure, and any regional measure it agreed would be written in expectation of being integrated into future international rules." LLOYD'S LIST, 28 March 2012, p 2

Quality concerns over low-sulphur fuel - By Craig Eason "Fuel quality problems could increase as shipowners are forced to use bunkers with lower sulphur content in the future. The risk is that bunker suppliers will blend low-sulphur fuel oils to meet the global reductions in 2020 in such a way that could lead to problems with ships' engines. In 2020, rules from the International Maritime Organization will see the fuel that shipowners can use restricted to having a sulphur content of less than 0.5%. Ships operating in one of the emission control areas will have a stricter level of 0.1%. While the latter level can only be achieved by using distillate fuels, which are more expensive, bunker suppliers will be able to blend cheaper residual fuel oils with distillates to achieve the 0.5% target." LLOYD'S LIST, 30 March 2012, p 5

APL to cut carbon emissions by 30% - By Tom Leander "Container line APL has announced an ambitious plan to cut its key carbon exhaust measure by 30% from all its shipping operations by 2015. The company will deploy 32 new vessels in the next three years and says better designs for fuel efficiency and slow steaming will help it to meet the target." LLOYD'S LIST, 5 April 2012, p 5

UK government advisers urge international regime on CO2 - By Craig Eason "A group of independent climate change advisers to the UK government has said the British shipping industry's contribution to global warming should be included in national reduction targets, but any abatement measures must be global, not national. A report by the Committee on Climate Change argues for supporting moves, such as those by the International Maritime Organization, to develop international market-based measures, pointing to the threat of carbon leakage if local policies are developed." LLOYD'S LIST, 10 April 2012, p 2

Japan slams EU push for regional CO2 reduction - By Craig Eason "Commission must step up work with IMO, not push own agenda. The Japanese government has told the European Commission to stop developing its own greenhouse gas reduction proposals for shipping and become more active in international discussions. In a strongly-worded letter to the commission, Japan says it is concerned about proposals to bring shipping into a regional market-based measure that will use fiscal controls to curb the industry's carbon dioxide emissions. The commission is about to end an open consultation process before launching formal deliberations about how to include shipping in its regional CO2 reduction targets." LLOYD'S LIST, 13 April 2012, p 1

Write on - By Tom Leander "Bravo to Japan for its courage in speaking the obvious: the European Union is doing real damage by pursuing a separate peace on the CO2 issue. The Japanese government said as much in its strongly worded letter to the European Commission, calling on the body to stop developing its own greenhouse gas reduction proposals and to focus on influencing discussions for a global solution via the International Maritime Organisation." LLOYD'S LIST, 16 April 2012, p 2

BIMCO and IMO voice concern over ECAs - By Max Lin "Fragmented patchwork of regional and unilateral regimes not in shipping's best interest, says Sekimizu. After its annual meeting in Singapore, BIMCO president and chairman Yudhishtir Khatau told reporters that various regulations in different ECAs were "the biggest challenges" the industry is facing. "When ships are trading in different regions, it would be difficult to comply with different ECAs which have different norms," Mr Khatau said." LLOYD'S LIST, 26 April 2012, p 2

Rising tide of environmental demands - By Craig Eason "The International Maritime Organization may seem hell-bent on bringing a whole tome of environmental legislation on the heads of shipowners in the coming decade, but it is worth remembering that the IMO is a function of its member states and they can be subject to political whims. Member states are at the beck and call of political agendas that in democracies may lead to populist vote-winning manifestos; manifestos that have increasingly turned to environmental issues as these are the issues that politicians see as hitting the right nerve within society. But shipping has two additional pressures. Firstly, it is the servant of global trade; when trade comes under pressure, so does shipping through its charter agreements, and secondly, shipping is subject to some of the toughest rules simply because it is afloat on the sensitive oceans and has a bit of an image problem." LLOYD'S LIST, 26 April 2012, p 2

Green drive gives root to Asian rivalry - By Tom Leander "Japan and Singapore vie for the best in research into energy efficient and safer shipping. Three nations have pursued improvement of global environmental standards by encouraging innovation to design, build and operate more fuel-efficient ships. It is no secret that Japan, Singapore, and South Korea are these virtuous outliers. The contrast in approach between Japan and Singapore suggests that competition and using different approaches could benefit the maritime industry at large." LLOYD'S LIST, 26 April 2012, p 6

[Europe tackles sulphur emissions from ships](#) EU governments on Wednesday agreed on legislation to limit the maximum sulphur content of shipping fuels that will come into effect in Europe at the end of the decade. Marine fuels with a high sulphur content create air pollution estimated to cause 50,000 premature deaths in Europe per year. Therefore, the new legislation is excellent news for the European's health and environment, especially in ports and coastal areas, EU Environment Commissioner Janez Potocnik said. Euractiv, 24 May 2012

Maersk sees the economic incentives of greener shipping - By Max Lin "Economic drivers are pushing large European shipping companies to support global environment initiatives, not just stronger environmental awareness and ethical considerations, according to AP Moller-Maersk. Maersk senior technical adviser Jan Otto de Kat said Maersk was seeing many economic incentives drive eco-friendly causes, something that many smaller shipping companies may not be able to afford. "Some of the [green shipping] technologies requires a lot of investments to be made," Mr de Kat told Lloyd's List. Not many companies, especially smaller ones, are willing "to cross the capital hurdles", he said." LLOYD'S LIST, 1 May 2012, p 7

More fuel bill transparency needed to fight emissions "Danish shipowners want the whole industry to reveal its annual fuel consumption figures to show it is committed to reducing emissions. The Danish Shipowners' Association will push next week's council meeting of tanker industry group Intertanko to get the whole shipping community to be more proactive rather than wait for a political compromise in the fight against climate change. Currently, there is political debate over the introduction of a market-based measure to force shipping to curb its CO2 emissions. The political debate centres on the International Maritime Organization, the UN Framework Convention on Climate Change and the European Commission." LLOYD'S LIST, 3 May 2012, p 1

Maersk aims to 'green' chartered fleet - By Ian Lewis "Maersk Line is seeking to close the eco-gap between its chartered and owned fleets. The Danish giant believes its owned vessels are around five to 10% more fuel efficient than the chartered ships, which account for two-thirds of its fleet. Maersk believes that major efficiency gains can be made from factors such as the tuning of engines, choice of hull paint, and timing and quality of hull and propeller cleaning. The liner operator reduced the carbon-dioxide (CO2) footprint of its chartered fleet last year by 5.8% per container kilometre (teu/km). But the company says it is keen to reduce this further to meet the goal of reducing CO2 emissions by 25% from 2007 to 2020." TRADEWINDS, 4 May 2012, p 13

Warning on impact of emissions regulations - By John Gallagher "A US bulker operator has publicly clarified the financial reality of the new regulations that will come into force on 1 August this year. Testifying at the maritime sub-committee of the US House Transportation and Infrastructure Committee on 26 April, Paul Cozza, president of Massachusetts-based CSL International, said the 1% sulphur requirement for marine fuel would increase operating costs by "millions of dollars". The requirement will apply to vessels operating within 200 miles of the US and Canadian coastlines under the North American Emissions Control Area (ECA)." FAIRPLAY, 10 May 2012, p 29

Brussels negotiates compromise on low-sulphur bunker fuels - By Roger Hailey "Brussels is close to brokering a compromise deal on low sulphur levels in bunker fuels for passenger and ro-pax vessels that would see a 0.5% level implemented from 2020. The existing proposals, bitterly opposed by the shipping industry, implement 0.1% sulphur levels from 2015 in the designated European coastal area, in line with IMO agreed revisions to Annex VI of Marpol. However, co-legislators from the member state Council of Ministers and the European Parliament met on Tuesday night under the Danish presidency and reached a "pre-agreement" compromise that still has to be approved by the largest Conservative bloc in the European Parliament and then put to a full vote." LLOYD'S LIST, 17 May 2012, p 3

Fresh resistance against 0.1% cap - By Michael Hollmann "Two and a half years ahead of the enforcement of a 0.1% sulphur cap on bunker fuel within the North and Baltic Sea Sulphur Emission Control Area (SECA), German shipowners are redoubling their campaign for a postponement of the new regulation. Given the non-availability of proven scrubber technology for the extraction of sulphur oxides from the exhaust, ship operators will have no alternative other than to buy the cleaner, more expensive fuel grades, the owners say. The switch would boost voyage costs to such an extent that many shortsea routes will no longer be competitive against road transport, prompting many shippers to shift cargoes back from sea to road." FAIRPLAY, 24 May 2012, p 18

Eco and economic benefits promoted "Environment-friendly logistics policies can be financially successful as well, believes Peter Chivers, group environmental manager at P&O Ferrymasters. Speaking at the Multimodal conference in the UK, hosted by European Shippers' Council web portal The Shippers' Voice, he explained why the company had joined Green Freight Europe, a voluntary initiative set up in March to benchmark CO2 emissions. Its membership includes about 50 multinational shippers, carriers, retailers and freight associations and it hopes to grow to 250 by the end of the year. "We are working with customers to achieve eco-friendly and cost-efficient logistics solutions for sound financial as well as environmental reasons," he told delegates." FAIRPLAY, 31 May 2012, p 35

EU debates radical move away from CO2 emission strategy - By Richard Meade "International CO2 emission control areas that would enforce lower emissions from ships are being discussed at inter-governmental level, as part of a series of contingency plans if international climate change talks fail to secure a viable agreement. Under scenarios laid out in informal discussion papers being circulated around several governments, CO2 control areas would be modelled on existing European Union sulphur emission control areas, known as SECAs. The new CECAs could potentially be agreed outside the International Maritime Organization framework by a coalition of willing governments. The proposals are said to be at an early stage of development, but Lloyd's List understands that the European Commission hopes to persuade willing governments to consider alternative scenarios, should diplomatic blocks from developing countries continue to stymie progress towards market-based mechanisms within the IMO to reduce CO2." LLOYD'S LIST, 7 June 2012, p 2

Shipping must shake apathy over green regulations - By Liz McMahon "Posidonia 2012: Study needs input to reveal the true cost of compliance to shipowners. North American Marine Environment Protection Association executive director Carleen Lyden-Kluss has urged the shipping industry to contribute to research that aims to calculate the cost to shipowners from environmental regulation. Namepa's study of shipping industry investment in environmental compliance approached 367 manufacturing and service companies and 95 shipowners at least four times but has only received responses from 6% of the companies it targeted. Ms Lyden-Kluss told the audience at the Namepa's seminar on environmental issues and compliance in the US at Posidonia that she found this figure disappointing." LLOYD'S LIST, 11 June 2012, p 4

Euro Green wants to meet shipping half way (Ref. IMO)- By David Osler "Green politicians and shipping industry executives famously do not always see eye to eye. But Keith Taylor, the Euro MP with responsibility for maritime issues on the European parliament's transport and tourism committee, belies the tree-hugger stereotype with ease, and seems more than ready to meet shipping half way. Given that oceans cover 70% of the world's surface, he strongly believes that shipping is something his party should have a view on. He also defends the EU's policy on sulphur emissions from ships, which he argues is simply the result of implementing Marpol Annex VI into European Union law. "We've got to bear in mind the consequences of not following the IMO regulations. They are there for a reason that I think is a good reason." LLOYD'S LIST, 12 June 2012, p 12

China sets green maritime targets - By Max Lin "China has set up emission and energy intensity reduction targets for its maritime transport sector, part of the country's efforts to curb pollution and global warming. The transport ministry expects that by 2015 ship operators will reduce their CO2 emissions per tonne-mile by 16% from the 2005 level, and cut their energy consumption per tonne-mile by 15%. Port operators are required to cut CO2 emissions per throughput by 10% in the 2005-2015 period, and cut energy use per throughput by 8%. The department's aims are roughly in line with China's national plan for 2011-2015, in which it will spend Yuan2trn (\$313.9bn) on green technology, aiming to reduce CO2 emissions per unit of gross domestic product by 16%. Transport minister Li Shenglin said: China will continue to talk to other countries about ways to reduce international shipping emissions under the UN and the International Maritime Organization frameworks." LLOYD'S LIST, 13 June 2012, p 3

Reduce CO2 emissions or count the cost - By Craig Eason "The International Maritime Organization is preparing to continue its huge task of carving out a system that will force shipping to either reduce its CO2 emissions or pay for its inability to do so. Papers seen by Lloyd's List show that the member states active in developing the proposals under review are ready to compromise on original drafts as the IMO works towards a final solution. Having already finalised two compulsory mechanisms that will come into effect at the beginning of next year, some feel that the third mechanism, known loosely as a market-based measure, is unnecessary." LLOYD'S LIST, 19 June 2012, p 7

Rumble in Rio "Greenpeace said today it was prepared for war with UN negotiators at the Rio+20 summit over watering down a draft agreement on protecting the world's oceans. Campaigners argue the document has no teeth and will fail to protect the oceans' eco-systems. Protection of the oceans includes managing oil spills and gas leaks effectively, but also covers ballast water management to stop alien species being transferred between oceans as ships discharge ballast water." LLOYD'S LIST, 21 June 2012, p 2

Low-sulphur regulations claimed to be life saver - By John Pagni "Finnish politicians back low emissions by shipping but wants a €10Bn EU subsidy to achieve it. Finnish Green MEP Satu Hassi was again the politician to raise the rallying cry for lower sulphur emissions from shipping when the related European directive (1999/32/EC) was agreed in late May. The present sulphur content level is 1% but this will be reduced to 0.1% by 2015 in Europe's sulphur emission control areas (SECAs) – the Baltic and North seas plus the English Channel – and to 0.5% by 2020 in non-SECA zones, where the present level is 3%." FAIRPLAY, 21 June 2012, pp 24-25

US green compliance stakes rise - By John Gallagher "Environmental experts warn US shipping to be greener or risk increased penalties. Much higher penalties and strict enforcement of environmental regulations by the US government will require shipowners trading in America to rethink how they administer their green compliance programmes. This was the message delivered to delegates at Posedonia 2012 by Carleen Lyden-Kluss, executive director of the North American Marine Environment Protection Association." FAIRPLAY, 28 June 2012, pp 24-25

UK shipping minister softens on low-SOx rules - By Craig Eason "UK shipping Minister Mike Penning has reportedly signposted a possible government swing in favour of shipping regarding the 2015 low-sulphur regulations. British shipping has, like many other shipowner and port groups in northern Europe, been alarmed at the potential impact of the 2015 low-sulphur rules that could have huge cost implications, increasing freight rates and driving a modal shift on ships operating in emission control areas. According to attendees at this week's European Cruise Council meeting, the minister said that while he believes in the target of 0.1% sulphur content in fuel, the 2015 deadline is too soon as there will not be enough 0.1% sulphur fuel available, making the product too expensive. He is also reported to have said that abatement technology, namely exhaust gas scrubbers, will not be fit for purpose by 2015." LLOYD'S LIST, 29 June 2012, p 2

Industry Viewpoint: The future we want - By Michael Grey "The biggest UN conference held to date, with 45,000 green-minded people jetting into the Brazilian city. The IMO had to be there and we must be glad they were, lest those crazed greenies who want all transport to cease and who love eructing meaningless statistics showing that shipping "is the world's greatest unreformed polluter", would have had nobody to challenge their daft and dangerous assertions. And for those who demand "social" action to assist the world's deprived, IMO secretary-general Koji Sekimizu is able to point to 1.5m seafarers, the majority of whom are from developing nations, who have useful employment contributing to Millennium Development Goals in a substantial way. The IMO, which hosted a well-attended side event on sustainable maritime development, was also able to re-emphasise shipping's contribution to the world economy." LLOYD'S LIST, 2 July 2012, p 12

IMO at Rio: offers holistic growth "The International Maritime Organization (IMO) will set up a new internal mechanism at the Office of the Secretary General, Koji Sekimizu, which will be dedicated to fulfilling his Rio+20 vision of sustainable maritime development. The Rio+20 vision is to uphold three pillars of sustainable development: the economy, society and the environment. In line with this are Sekimizu's seven goals for sustainable maritime development. The 'seven pillars' are: global standards, energy efficiency, new technology, education and training, maritime security, maritime traffic management and maritime infrastructure. Sekimizu said they will stretch beyond 2015 – the end point of the Millennium Development Goals." FAIRPLAY, 5 July 2012, p 27

Extra costs from maritime ETS to play a 'minor role' - By Roger Hailey "Additional costs would play only a "minor role" in any maritime emission trading scheme, suggests German research house ZEW. The ZEW discussion paper* has appeared as the International Maritime Organization grapples with the task of reducing worldwide CO2 emissions by ships, estimated at 870m tonnes in 2007, or 2.7% of total emissions. Among the different approaches under review by the IMO's MEPC committee are market-based mechanisms such as a levy on bunker fuel or a maritime ETS. The fuel levy on bunker purchases would see money passed on to a special maritime fund secretariat to allocate the reserves. The emissions trading schemes suggested by Norway, the UK and France also rely on a fund secretariat and the allocation of credits through a cap and trade system." LLOYD'S LIST, 13 July 2012, p 2

US prepared to be lenient on ECA fuel restrictions - By Adam Corbett "On the eve of the establishment of a North American emission control area (ECA), the US government says it is prepared to take a lenient view on shipowners who failed to secure low-sulphur fuel ahead of the 1 August deadline — as long as they have made their "best effort" to do so. From next month, under Marpol Annex VI, ships will be required to burn fuel with no more than 1% sulphur content for 321 kilometres (200 miles) around the US coast in a move that matches limits now applied in the North Sea and Baltic Sea." TRADEWINDS, 13 July 2012, p 39

Cracks emerge in green argument – By Bouko de Groot "Environmental efforts of container carriers are "purely driven by fuel savings and regulations", Lars Jensen, CEO of Sealntel Maritime Analysis told Fairplay. Last year his company set out to benchmark the environmental performance of major container carriers because no consistent benchmark existed, even though most carriers and freight forwarders claim the environment matters to them. Consequently, Jensen said, there was no unbiased ranking for carriers with environment priorities. "They used individual standards: in other words, no standards at all." FAIRPLAY, 19 July 2012, pp 18-19

ICS boss miffed over IMF call for green-fund cash – By Adam Corbett "Newly appointed International Chamber of Shipping (ICS) chairman Masamichi Morooka has made his mark with a hard-hitting letter to the head of the International Monetary Fund (IMF), Christine Lagarde, criticising her remarks on shipping's potential contribution to a global green fund. Morooka has been riled by Lagarde's suggestion that shipping and aviation could contribute one-quarter of a mooted \$100m fund to help developing countries cut back on greenhouse gasses. The ICS head hit back saying cash-strapped shipowners are not in a position to contribute such an amount. He added that shipowners' contribution should be in line with their carbon output, which at the moment only contributes about 3% of total carbon emissions." TRADEWINDS, 20 July 2012, p 39

NYK Line goes even greener - By Tom Leander "Japan giant has expanded its reporting on emissions to its supply chain, with independent verification. Underscoring its drive for better environmental performance, NYK has sought certification from an independent auditor of its disclosure of greenhouse gas emissions to a standard known as Scope 3 of the Greenhouse Gas Protocol. The GHG Protocol, an international guideline for reporting carbon emissions, defines three scopes of emissions. Scope 1 targets direct carbon emissions from sources controlled by a company, while scope 2 gauges indirect emissions through energy consumption. Scope 3 extends this further by targeting emission generated through a company's supply chain." LLOYD'S LIST, 23 July 2012, p 6

More must be done to study low-sulphur fuel availability - By Liz McMahon "The International Maritime Organization must accelerate its study into the global availability of low-sulphur fuel for ships, according to the International Chamber of Shipping. In a submission to the IMO Marine Environment Protection Committee, which meets in October, the ICS said it had pressed the IMO to start work now on a study that can consider the impact all of the major changes required by the new Marpol regime, before it is too late for the oil refining industry to respond and invest." LLOYD'S LIST, 25 July 2012, p 2

CO2 curbs will not damage shipping, argues US think tank - By David Osler "International Maritime Organization curbs on greenhouse gases will have no significant adverse impact either on the shipping industry or US consumers and businesses, according to research from a prominent Washington think tank. Indeed, the Brookings Institution — usually regarded as liberal in the US usage of the word — believes that a

bunker fuel levy could boost the global economy by mitigating the social costs of carbon dioxide emissions from shipping, which it puts at an estimated \$18bn per year. Authors Nigel Purvis and Samuel Grausz argue that the debate has so far been hampered by the lack of available cost-benefit analyses and have written a paper titled Sink or Swim: the Economic Impacts of an International Maritime Emissions System for Greenhouse Gases on the US." LLOYD'S LIST, 2 August 2012, p 7

French back sulphur exemptions "French owners have welcomed a proposal from the European Community Shipowners' Associations (ECSA) to exempt certain vessels and shipping routes from stricter marine fuel sulphur limits until 2020. Armateurs de France (ADF) said that the proposal, which is to be submitted to European Union member states, was given "strong and unanimous" support by the ECSA board at its latest meeting in Cyprus in late June. Referring specifically to the 0.1% limit scheduled to be introduced in European sulphur emission control areas in the Baltic, North Sea and English Channel in 2015, ADF said that ECSA had agreed that a "rigid and brutal" implementation of the limit would be "catastrophic" for the future of the shipping sector." FAIRPLAY SOLUTIONS, August 2012, p 6

US grants first ECA waiver to Alaska's Totem Ocean – By Adam Corbett "US authorities have granted the first waiver from complying with the Marpol Annex VI North American emissions control area (ECA). The US ECA, which limits the sulphur content of fuel to 1% in a 200-mile (320-kilometre) zone around the coast, began on 1 August but Alaska-based Totem Ocean Trailer Express (TOTE) said it would not have to comply after reaching an agreement with the US Coast Guard (USCG). The permit is part of a public/private project with the US government to convert Totem's Orca-class vessels to primarily LNG-fuel propulsion." LLOYD'S LIST, 13 August 2012, p 39

Introducing ECAs – Lessons from California – By Jeff Cowan "In 2010, the IMO amended the International Convention for the prevention of Pollution from Ships (MARPOL) to designate specific portions of US, Canadian and French waters as Emission Control Areas (ECAs). From 1 August 2012, ships transiting these waters will have to burn fuel oil with a maximum sulphur content of 1.0%. In August 2015 the limit will be reduced the 0.1% sulphur." SEAWAYS, August 2012, pp 24-25

Fuel availability in the North American ECA – By Samantha Cacnio "Despite being on the brink of a North American ECA deadline, many are questioning the maritime sector's readiness for what promises to be a challenging period ahead." BUNKER BULLETIN, July/August 2012, pp 30-31

TSA adds low-sulphur fuel component to bunker charge - By Tom Leander "Lines in the Transpacific Stabilization Agreement will begin adding in costs attributed to more expensive low-sulphur burning fuel in the wake of new requirements under the North American Emissions Control Area that began on August 1. A new international protocol now requires vessels to reduce sulphur oxide emissions by switching to low-sulphur fuel within 200 miles of the US and Canadian coasts. The TSA, a research and discussion forum for the major container shipping lines, will apply a mechanism that tracks weekly price differentials between low-sulphur and standard marine bunker fuels. The method will calculate an average per container fuel cost differential based on sailing days and relative higher fuel consumption within the 200-mile zone, then apply that to the existing TSA bunker charge as it is adjusted." LLOYD'S LIST, 30 August 2012, p 3

Sulphur fuel price spread widens on US west coast - By Eric van den Berg "ECA spells supply shortages for California bunker market. Bunker traders warned long before the ECA came into effect that a shortage of low-sulphur fuel was imminent in the US, particularly on the country's west coast. Under the new ECA regulations, which came into effect at the beginning of this month, shipowners are required to burn low-sulphur fuels within a 200-mile range of the US coast." LLOYD'S LIST, 30 August 2012, p 9

Ambassadors press EU for global climate change solution - By Craig Eason "Ambassadors from the Bahamas, Canada, the US, Japan, Australia, Panama and Singapore have sent a strongly worded letter to the European Union, urging it to work towards an international solution to climate change. The European Commission is deliberating how it could create a financial or market-based measure to curb emissions from shipping. Brussels has pushed ahead with its own agenda, claiming that similar work at the International Maritime Organization has all but stalled over the past 10 years. Representatives from the European Commission have previously told Lloyd's List that development of its own measure could take up to five years, yet Brussels is still searching for a solution at the IMO. However, the letter sent yesterday suggests they should cooperate more." LLOYD'S LIST, 31 August 2012, p 2

Making shipping sustainable "At the recent UN conference on sustainability, held in Rio in June, one of the key documents was the blueprint for ocean and coastal sustainability. The blueprint was produced by a number of different UN agencies, including IMO, and sets out both the achievements in this area and outlines future plans and legislation for developing what it calls a 'Blue-Green Economy' – that is, a sustainable way of living with the ocean and from the ocean. It is likely that this document will have considerable impact both on MSP and on the development of national and international shipping legislation." SEAWAYS, September 2012, pp 12-13

Live with it "The European Parliament's approval of the low-sulphur directive from the European Commission effectively ends shipowners' ability to push for altered dates and emissions limits to those agreed in 2008 when the International Maritime Organization amended annex VI of its marine pollution convention. Although the decision has overruled shipowners' five-year campaign to soften emission rules, it has to be said that it took shipowners several of those five years to formulate a collective stance to deliver genuine lobbying pressure. Owners now expect higher fuel costs and a possible shift of some cargoes to road and rail." LLOYD'S LIST, 13 September 2012, p 2

Brussels dashes shipowners' SOx hopes." - By Craig Eason "The European Parliament has given low-sulphur fuels its stamp of approval, dashing shipowners' hopes of a reprieve. A parliament meeting in Strasbourg yesterday voted for the low-sulphur directive from the European Commission, overruling pressure to amend it. The directive mostly emulates the dates and emissions limits agreed in 2008 by the International Maritime Organization when the IMO amended Annex VI of its marine pollution convention. The last step to bring the directive into force will be a European Council meeting later this year, although there is little hope that there will be any significant change." LLOYD'S LIST, 12 September 2012, p 1

Ship emissions drop in the Med "Sulphur dioxide ship emissions have dropped by two-thirds at some of Europe's Mediterranean ports since 2012, the European Commission reported recently. Scientists at the EC's Joint Research Centre measured air quality in four Mediterranean ports before and after low-sulphur regulations took effect for ships at anchor in January 2012, the JRC said in a statement." PORTS & HARBOURS, September/October 2012, p 8

Shipping must fight risk of soaring carbon emissions as trade grows – By Geoff Garfield "High fuel prices alone may not be enough to ensure energy-efficiency measures are executed. If international shipping continues to grow at a "business as usual rate", it could account for 12% to 18% of global carbon-dioxide (CO₂) emissions, as compared with just 2.7% as recently as 2007, says Katharine Palmer, Lloyd's Register (LR) environmental manager. This is in the context of a world commitment to stabilise CO₂ concentrations at 450 parts per million (ppm) but would see shipping emitting between two billion and three billion tonnes of CO₂ by 2050, as compared with 870 million tonnes five years ago." TRADEWINDS, 21 September 2012, p 23

Cruise deal promises flexibility – By Greg Miller "How to manage financial fallout from the North American Emission Control Area (ECA) is one of the cruise industry's greatest concerns. ECA fuel requirements threaten to dramatically increase costs and potentially force itinerary

shifts. However, a more flexible template for ECA compliance was revealed earlier this month. If widely adopted, it could partially alleviate the threat to cruise operators and their ports. A breakthrough was confirmed this month: Royal Caribbean won approval for a landmark compliance method involving multiple-ship sulphur averaging and the banking of credits for both scrubbers and cold ironing." FAIRPLAY, 27 September 2012, p 25

Countdown to EU modal shift starts - By Andrew Spurrier "The countdown to modal shift, which it is generally agreed will follow implementation of a 0.1% marine fuel sulphur limit in the Baltic, North Sea and English Channel in 2015, has begun in earnest for north European shippers and shortsea operators. The European Parliament's approval of the draft revision of the EU sulphur directive on 11 September means it is virtually certain the limit will become EU law in a matter of weeks. There are indications, however, that a modal shift to land transport may no longer be the evil spectre for some sectors that owners and shippers warned of during efforts to persuade the European Union to mitigate the effect of the new sulphur limit in emission control areas." FAIRPLAY, 4 October 2012, p 28

EU holds firm to sulphur cuts "European shipowners' associations have failed to convince regulators to reconsider impending cuts in permitted sulphur levels. The European Parliament (EP) has voted in favour of introducing a 0.5% general limit on the sulphur content of marine fuels by 2020." FAIRPLAY SOLUTIONS, October 2012, p 8

LNG project flagged up as potential massive polluter - By Geoff Garfield "LNG is hailed as the clean fuel of the future, including for ships, but a new report says an LNG-terminal project south of Kitimat on Canada's west coast would generate the equivalent of more than three million tonnes of carbon dioxide (CO2) a year. Non-profit think-tank Pembina Institute says its research shows that total annual greenhouse-gas emissions resulting from Kitimat will be 3.37 million tonnes. Only 325,761 tonnes of CO2 emissions would stem from terminal operations but 3,044,511 tonnes would come from the production and transport of natural gas to Kitimat." TRADEWINDS, 5 October 2012, p 19

Figueres strives to clean up shipping - By Adam Corbett "A former president of Costa Rica has set out how he intends to win over the skeptics by using a new financing model to upgrade ships and cut carbon emissions. As shipping strives to clean up its growing air-pollution problem, it has recently been receiving some advice from quite an unusual source. Jose Maria Figueres, a former president of Costa Rica, has been arguing for shipowners to step up their efforts to reduce carbon emissions. The 57-year-old's emergence in shipping's emissions debate comes by virtue of his appointment in March as president of British entrepreneur Richard Branson's Carbon War Room (CWR), an organisation established in 2009 to encourage transport industries to reduce greenhouse gases." TRADEWINDS, 5 October 2012, p 39

Bridges built at the IMO environment committee "Many were disappointed by the outcomes on low-sulphur fuel and ballast water management systems (BWMS) but this was lightened by signs of compromise on issues related to the energy efficiency design index for ships (EEDI) regulation due to come into force on 1 January 2013. A call to accelerate a study into the global availability of low-sulphur fuel for ships was rejected, against the wishes of major shipping nations, including China. The move was decried by the International Chamber of Shipping (ICS). Its secretary general, Peter Hinchliffe, emphasised that refiners needed time to "invest and react" because the required upgrades to refineries could take five years or longer." FAIRPLAY, 18 October 2012, p 30

Polsteam cleans up its emissions act - By Geoff Garfield "Polish Steamship Co (Polsteam), which is close to completing a 38-ship newbuilding programme costing around \$1bn, is switching its focus to retrofitting part of its fleet with exhaust gas scrubbers to meet future emission-control-area (ECA) requirements. The bulker giant, with nearly 80 vessels, is likely to install scrubbers on the newer tonnage in its fleet, which it acknowledges will be an expensive operation." TRADEWINDS, 19 October 2012, p 6

Star Bulk Carriers awarded first Carbon Positive Certificate - By Nigel Lowry "Measurement is fundamental step towards reducing emissions, says consultancy. Star Bulk Carriers, the Greece-based capesize and supramax owner, has been awarded the first compliance certificate under the Carbon Positive Programme for Ships after monitoring emissions from its fleet for 12 months. Each of Star Bulk's 14 bulkers receives the first-phase Certificate of Measurement. The intelligence generated from the comprehensive emissions measurement process is expected to provide the foundation for identifying opportunities for improvements that "can generate cost benefits and commercial advantage". LLOYD'S LIST, 22 October 2012, p 4

Shippers claim place at heart of carbon curbs **By Roger Hailey** "Shippers want a greater say in the framing of a market-based scheme to cut maritime carbon emissions, arguing they will bear the final cost of such an initiative, writes Roger Hailey. The Global Shippers' Forum, which represents maritime container customer groups' interests from Asia, Europe, North and South America and Africa, says its members need to be "at the heart of maritime climate change debate". LLOYD'S LIST, 24 October 2012, p 2

Brussels approves new sulphur directive - By Craig Eason "The European Council has rubber-stamped Brussels' sulphur directive, paving the way for it to become regional law. It has, however, reiterated the role of the European Commission in helping the shipping industry find ways to comply with the regulations. The new European sulphur directive mirrors the rules laid out by the International Maritime Organization's marine pollution convention Annex VI amendments, which call for fuels with less than 0.1% sulphur content to be used in emission-control areas after 2015. The Baltic and North Seas, along with the English Channel, constitute the north European ECA." LLOYD'S LIST, 30 October 2012, p 2

China plans shipping carbon tax - By Angela Yu "China's transport ministry announced at the 40th meeting of the Comité Maritime International in Beijing on 15-19 October that it will develop a carbon exchange or carbon tax for domestic shipping. A transport ministry official told Fairplay: "China believes the UN Framework Convention on Climate Change is the general framework for negotiation in international carbon reduction," but he conceded that "a complete consensus has not been achieved". FAIRPLAY, 1 November 2012, p 27

GL takes the sting out of emissions "Meeting increasingly stringent demands for cleaner ships is ever more difficult for owners and designers. Shipping is good value for the amount of cargo shifted per tonne of fuel consumed, but no-one is certain what the actual emissions are? Germanischer Lloyd's Barbara Woltron and Martine Kopke report." NAVAL ARCHITECT, November 2012, pp 30-36

Stena chief slams 2015 sulphur emission rules - By Liz McMahon "As Stena Line celebrates its 50th anniversary, chief executive Dan Sten Olsson has expressed disappointment about the 0.1% sulphur emission rule, even though the ferry giant is already taking steps to reduce its bunker consumption. Speaking exclusively to Lloyd's List, Mr Sten Olsson said: "The environment has always been a concern and we have always taken the initiative in this area. "From 2008-2012 we have reduced bunker consumption by 27%. We think we can continue to reduce this by 2.5% per annum." Mr Sten Olsson said Stena Line achieved that result by focusing on two areas: technical and engineering improvements and behaviour of crew. He said that both factors were equally important." LLOYD'S LIST, 15 November 2012, p 4

Shipping refuses to play cash cow in the war against climate change - By Craig Eason "The latest round of climate talks within the UN Framework Convention on Climate Change has resumed in Doha. One of the areas that will be discussed is the development of the Green Climate Fund that was agreed in Durban last year. The target is to raise \$100bn a year, from 2020, to help developing countries to adapt to global warming. Shipping companies fear that they will be strong-armed into making an unacceptable contribution to this annual fund." LLOYD'S LIST, 27 November 2012, p 3

Take note for a cheap and easy way to measure ship emissions - By Craig Eason "The mandatory bunker delivery note could have a role in curbing CO2. Shipowners will soon enter an era when their vessel's CO2 emissions will be monitored, and the bunker delivery note may well hold the key. There is not likely to be one hard and fast way that emissions monitoring will be done, but in all likelihood the easiest and cheapest is using the bunker delivery notes that are already being produced as a way to assess fuel consumption, because fuel consumption is a direct indicator of CO2 emissions. The monitoring, measurement and reporting of emissions is set to be the cornerstone of a real push to create an acceptable market-based measure for shipping, as pressure still exists to make shipping contribute to the global efforts to curb climate change." LLOYD'S LIST, 30 November 2012, p 8

Four methods to calculate a vessel's CO2 footprint - By Craig Eason "Brussels and the IMO make the first moves towards a market-based measure. Four methods are likely to be used to generate the fuel consumption or emission data for the next study. Apart from the bunker delivery note, which is an established and mandatory piece of paperwork, other methods include bunker fuel tank monitoring, flow meters measuring fuel into the engine and measuring direct emissions of the engine exhaust as it enters the atmosphere." LLOYD'S LIST, 30 November 2012, p 8

Shipping faces uncertainty over climate-change measure (Ref. IMO) - By Craig Eason "Shipping is facing more regulatory uncertainty after international climate talks again failed to deliver any concrete advances to help the industry to work to offset global warming. The latest meeting of the United Nations framework convention on climate change has finished another marathon round of talks, this time in Doha, Qatar. Member states agreed to extend the Kyoto Protocol, an agreement that is behind one of the biggest stumbling blocks facing the International Maritime Organization: the different responsibilities between the developed and the developing nations within the UN bodies." LLOYD'S LIST, 13 December 2012, p 1

Lull before the storm (Ref. IMO) - By Craig Eason "The heated debates over how shipping's CO2 emissions could be curtailed in future may have died down in recent months, but that does not mean the problem has gone away or been resolved. The extension of the Kyoto protocol, as a result of the latest climate talks in Doha and the removal of specific texts suggesting shipping contributes to a \$100bn global climate fund to support mitigation measures, both point to a return to stalling tactics when the marine environment committee meets next year." LLOYD'S LIST, 13 December 2012, p 2

CSL at forefront of push to win rethink of ECA sulphur rules - By Eric Martin "The Canadian self-unloader is supporting moves to limit the North American Emissions Control Area (ECA) to 50 nautical miles from the coast. CSL Group sees itself as no enemy of environmental regulation. After all, as a leading player in the self-unloading-bulker space and a key shortsea operator in North America, the owner tries to stay at the forefront of environmentally friendly shipping. However, the Montreal-headquartered company has placed itself on the front lines of an effort to persuade decision makers in Washington and Ottawa to carve out an exception from sulphur limits that tighten in 2015 in the North American Emissions Control Area (ECA)." TRADEWINDS, 21 December 2012, p 12

Maersk mission "It may appear odd that shipowner Maersk Line is urging Hong Kong to create more stringent emissions rules for shipping, but it does make sense. The Danish owner has been using low-sulphur fuels in the Asian port as part of a voluntary scheme. It therefore knows the economic impact and issues with sourcing those fuels. Other owners with vessels in Hong Kong are not so well prepared and would naturally be hesitant about such a move. Hong Kong's waters or those of the Pearl River Delta may be the next designated an emission control area but others are under discussion and the likelihood is that more will follow in the footsteps of North America." LLOYD'S LIST, 21 January 2013, p 2

Third time lucky for emissions measure - By Craig Eason "Serious discussions will start next month on how to once again measure CO2 emissions from shipping. A workshop will start on February 26 at the International Maritime Organization in London, drawing experts from the International Association of Classification Societies and representatives from flag authorities and shipping organisations. Results of a 2009 study are widely believed to be out of date as the economic downturn and slow steaming have impacted shipping. A general increase in ship sizes and tonne miles, and the advent of fuel-saving technologies as a result of increased bunker prices, have shaped the base assumptions of the last greenhouse gas study. It is therefore seen as important to have a more up-to-date estimate. How the new study will be carried out has yet to be agreed. It could be that the next theoretical calculation will reveal that shipping contravention viewed as a percentage of the global total has dropped, strengthening the argument that any contribution by the industry should be lower than some have pushed for. The workshop has to find a methodology to include all the gases from shipping considered greenhouse gases, not just CO2. Although CO2 is the predominant gas, others are more harmful but in much lower volumes." LLOYD'S LIST, 22 January 2013, p 9

Hong Kong pushes for a regional ECA - By Tom Leander "Hong Kong's government has pledged to step up its effort to create an emissions control area in the territory and the wider Pearl River Delta in a move endorsed by shipowners that are voluntary participants in a two-year drive to burn lower-sulphur fuel in Hong Kong's Prot. "We are pleased to see the chief executive's support in the policy address for action to address the issue, and believe that by working together, government and the shipping industry can achieve significant improvements in air quality in Hong Kong," said Maersk north Asia chief executive Tim Smith, chairman of the Hong Kong Liner Shipping Association." LLOYD'S LIST, 24 January 2013, p 7

Polish shipping slams emissions rule "Although new 2015 EU-enforced controls on sulphur emissions for Baltic Sea shipping have been given the nod in Poland's corridors of power, the country's maritime companies are crying foul. In two years they will have to ensure that their fuel contains only 0.1% sulphur, a rule that, as far as Europe is concerned, will only apply to the northern waters, the English Channel, and the North Sea. The Mediterranean will be subject to laxer restrictions. However, Poland's shipping companies fear the conversions needed because of the lower sulphur content of their fuel will impose a financial burden that could threaten their businesses. They also point to a potential consequence that could harm rather than help the environment." FARIPLAY, 24 January 2013, p 32

Hong Kong on track to mandate sulphur content of bunker fuel "Hong Kong's government has hinted that it is on track to mandate sulphur content of bunker fuels used by vessels at berth in the territory by the end of this year. The move could pave the way for an emissions control area in southern China. In response to some major industry players, Hong Kong environment undersecretary Christine Loh promised that the government was studying environmental regulations over fuel at the port, which could apply different standards to each shipping sector. The deliberations may bear fruit later this year. "A regulatory draft will be sent to the Legislative Council in the session after summer, in the fourth quarter," Ms Loh said. For greater environmental benefits, Hong Kong has also been negotiating with regional governments over establishing an ECA for ships in the Pearl River Delta, which would be the first of its kind in Asia. Hong Kong has received the nod from Beijing to do so." LLOYD'S LIST, 28 January 2013, p 5

SOx it to us "Regulatory change in shipping often comes at owners' expense, especially environmental ones. Given the doom-laden predictions by some shipping and trade groups about the pending SOx emission limits in 2015 and 2020, this particular topic has struck a nerve. This is why Lloyd's List is launching its next survey as a crucial deadline approaches, to understand how the industry thinks about the regulations and what solutions are there to meet them. Since the rules were agreed, bunker fuels have risen in price considerably, with costs of low-sulphur fuels likely to rise more steeply in the future. Meanwhile there has been significant development in using natural gas as a fuel and in the development of the exhaust gas cleaning system — the SOx scrubber. Industry is at a crossroads with many owners and charterers still uncertain. But how uncertain are they?" LLOYD'S LIST, 29 January 2013, p 2

Shipping urged to improve sustainability reporting - By Nigel Lowry "Shipping companies have been urged to begin sustainability reporting in view of its rising importance on the agendas of regulators, industry bodies and customers. The advice comes in an adjunct to PricewaterhouseCoopers' latest annual Global Shipping Benchmarking Survey which finds shipping "very quiet" regarding sustainability performance. "Our analysis shows that shipping is still lagging behind other industries in this field and that this may be a missed opportunity," wrote PwC's global shipping and ports leader Socrates Leptos-Bourgi in a foreword. PwC found that industry reporting had not widely responded to recent developments with regard to carbon dioxide emissions within the shipping industry, with only one in five companies surveyed revealing on its CO2 emissions in its latest annual report." LLOYD'S LIST, 30 January 2013, p 1

Carnival scales up expected trajectory of emissions costs – By Eric Martin "The Miami-based cruise giant reckons its annual fuel expenses will surge by up to \$275m when sulphur limits are further tightened in January 2015. Cruise giant Carnival Corp has pumped up its estimates on the toll of emissions regulations on its future costs. The Miami-headquartered outfit now expects its annual fuel costs to increase by up to \$275m across four emissions control areas (ECAs) when sulphur limits are further tightened in January 2015." TRADEWINDS, 1 February 2013, p 4

ICS backs international emissions monitoring system - By Liz McMahon "The International Chamber of Shipping has voiced support for an international system of monitoring, reporting and verification of emissions with the caveat that this acceptance should not be used for development of any other market-based measure or the mandatory application of energy-indexing measures to existing ships. At its board of directors' meeting in London, the ICS reviewed recent developments for the international regulation of CO2 emissions from ships. This included proposals by the US and the European Commission and others about establishing a mandatory monitoring, reporting and verification system. ICS chairman Masamichi Morooka said the ICS would fully support the concept of MRV, as long as any measure adopted was developed and agreed at the International Maritime Organization, was simple to administer and based primarily on fuel consumption measured by bunker-delivery notes." LLOYD'S LIST, 7 February 2013, p 2

'Turning point' on sulphur limit "French shipowners have hailed as a "turning point" a decision by EU transport ministers to seek solutions for owners' concerns about the timing of the planned 0.1% marine fuel sulphur limit in the English Channel and North and Baltic seas. The ministers, at the EU Transport Council meeting on 20 January in Brussels, agreed to start talks soon on the implementation date. France and other member countries had expressed concerns that the planned 1 January 2015 introduction of the new limit could not be met. The French delegation, which raised the issue, argued that acceptably priced fuels compliant with the new limit would not be available in time. A statement issued after the meeting added that other national delegations had backed the French position." FAIRPLAY SOLUTIONS, February 2013, p 9

Sulphur rules need stronger enforcement - By Craig Eason "Poor rule enforcement could allow owners to get away with using or being unwittingly sold bunkers with higher than permitted sulphur content. A report by Cardiff University's Seafarers International Research Centre has revealed that inspectors in the UK and elsewhere in Europe often use documentation inspections to verify compliance with the low sulphur rules that apply in emission control areas. These inspections revolve around the bunker delivery note and the oil record book. The authors said the bunker delivery note left on a vessel was often a handwritten, carbon-copy receipt in a language other than English that did not always state the sulphur content in the fuel delivered or name its supplier. Bunker delivery notes can be easily modified after issuance and it can be difficult to follow the paper chain to find the original note." LLOYD'S LIST, 21 February 2013, p 5

Next stop ECA? Further steps to curb pollution - By Tom Leander "Hong Kong's new government has made several promising steps toward addressing the problem of marine fuel oil pollution in the territory. Further, it has pledged to pursue a larger agreement that would encompass the Pearl River Delta with the government of Guangdong to create what would be Asia's first emissions control area. Shipowners' role in providing the government an example — as well as a carrot and a stick — by launching the Fair Winds Charter in 2011 and extending it another year this January has been covered by Lloyd's List several times. Now the hard work begins for the current administration, which has won praise for its attention to maritime affairs. The government is committed to putting forward legislation that would require all ocean-going vessels berthing in Hong Kong to switch to low-sulphur fuel. This would grant the level playing field that participants in the Fair Winds Charter seek as a condition to continue their steps to switch to the more costly, cleaner fuel in port beyond 2013." LLOYD'S LIST, 21 February 2013, p 9

Maritime jobs at risk as SOx emission rules loom - By Craig Eason "Sulphur emission rules that will affect UK shipping in 2015 could lead to the loss of over 2,000 jobs and cause the price of road diesel to rise. A UK Chamber of Shipping report, which the chamber says is the first of its kind to go into such detail, suggests that much more freight would be moved by road, leading to increased carbon emissions, route closures, job losses, and increased road congestion. The cost of road diesel would increase by 2.8p per litre, and freight and passenger prices on vessels will rise, in some cases by up to 29%. In less than two years new regulations will force owners in northern Europe to use a marine fuel that has a sulphur content less than 0.1%." LLOYD'S LIST, 12 March 2013, p 1

Making the Baltic a NOx emission-control area faces many challenges - By Craig Eason "Despite many industry assumptions, the Baltic and North seas are not designated emission control areas for NOx emissions. Pending regulations for SOx reductions in the ECAs have been well documented and debated. Not so the NOx regulations that will tighten emission limits in ECAs. To date, the only confirmed ECA for NOx is around North America. The amendments in 2008 to Annex VI of the marine pollution convention mean that vessels built after 2016 that enter an ECA must produce NOx emissions below a level known as tier III. An application to make the Baltic Sea an ECA is being discussed by the surrounding states through the Helsinki Commission. Helcom is preparing a submission to the IMO, but it is unlikely to be ready for the May meeting of the marine environment protection committee, and so is likely to be put to the next meeting, in 2014. One stumbling block to the application is that Russia has questioned the need for the Baltic Sea to become a designated NOx ECA." LLOYD'S LIST, 12 March 2013, p 9

EU agrees solutions needed to meet sulphur rules "The controversial European Union directive introducing new limits on the sulphur content of marine fuels came into force officially on 17 December, marking a "clear step forward in protection of people's health and the environment", according to the European Commission. The directive, which is based on regulations adopted by the IMO in 2008, gives EU member states until 17 April 2014 to bring their national legislations into compliance." PORTS AND HARBORS, March/April, 2013, p 37

LNG builds a foothold in Europe "Within the northern European emissions control area (ECA), markets are developing for the distribution of small-scale LNG to supply industrial users and to develop demand for bunkers for shipping. At Hanson Wade's LNG Fuelled Shipping conference last month in Hamburg, delegates were told LNG's success as fuel for shipping first required financial, practical and technical inhibitors to be overcome. The key driver is regulatory: there are about 22 months to go before the IMO's 2015 implementation of a 0.10% limit on sulphur emissions within ECAs. Shipowners and operators will respond according to how much time they spend within an ECA. The majority of deepsea ships may simply choose to switch to marine gas oil/diesel, although industry observers feel the increased demand will see prices rise and those paying the fuel bill will seek the most efficient vessels. While ECAs currently require emissions to be no more than 0.5% sulphur, within EU ports this limit has already been lowered to 0.10% – a level only MGO/diesel can meet." FAIRPLAY, 14 March 2013, pp 16-17

Owners denied state aid for SOx compliance - By Craig Eason "Despite Brussels saying that European Union member states should offer assistance to shipowners to meet requirements of the sulphur in fuels directive, few are actually doing so. The European Commission updated its sulphur in marine fuels directive last year, aligning it with the emission rules agreed previously by the International Maritime Organization.

However, when it did so it also said that members could offer state aid to owners supporting technology adaptation. Owners wishing to install an exhaust gas cleaning system or to convert a vessel to run off natural gas would be able to tap into financial support for what could turn out to be huge capital expenditure. The problem, according to P&O fleet director John Garner, is that member states simply do not have the funds available to support shipping. The initial costs of installing a scrubber on a ship are among the biggest hurdles facing owners, he told a Lloyd's List SOx panel session at this year's GreenShip Technology Conference in Hamburg." LLOYD'S LIST, 19 March 2013, p 9

States urged to help owners meet tougher SOx rules - By Liz McCarthy "International Maritime Organization secretary-general Koji Sekimizu has called on governments to support shipowners in the transition to lower sulphur emissions, asking policy makers to bring together all stakeholders as the regulatory deadlines approach fast. Addressing the Connecticut Maritime Association Shipping 2013 conference, he said that internal conversations within the maritime industry could not generate all the answers. "The shipping industry cannot produce fuel," Mr Sekimizu said. "So the discussions on how to move forward must involve not only shipping, but also ship designers, the oil and refinery industries and port developers and it is essential that governments and policy makers establish clear policies so that industry partners can make proper and timely investment to meet the targets and desired objectives. "I recently visited Finland, where I was impressed to see its government's active involvement, offering clear incentives for the development of energy-efficiency technologies for shipping. I think theirs could be an example that others might wish to follow." LLOYD'S LIST, 21 March 2013, p 2

Are eco-ships necessary when slow steaming still rules? - By Liz McCarthy "With a minimal difference in cost savings between a modern ship and an eco-ship when slow steaming — a market staple for the foreseeable future — many industry leaders are still unconvinced of the benefits of ordering newbuildings with fuel-efficient technology. Charles R Weber projects manager Basil Mavroleon said that eco-ships only excelled at cutting fuel consumption at the top end of the speed spectrum and that a five-year-old ship could slow steam very effectively. "When you're going at seven or eight knots in ballast in this market – does it matter? That's why I'm not yet sold," he said." LLOYD'S LIST, 21 March 2013, p 3

UK emission rules are confusing, say legal experts - By Craig Eason "UK regulations on sulphur limits have not been updated to match international rules, and could add to confusion over enforcement, say legal experts. The news will further confuse owners already seeking clarity on how a number of rule changes in the industry will be enforced. Although international rules have come into force around the world through the International Maritime Organization limiting sulphur in fuels to 3.5%, the UK rules still suggest vessels can use fuel with a 4.5% limit. As a member of the IMO and the European Union, the UK is expected to mirror their rules in its national legislation. This means that vessels operating in an emission-control area should use a fuel with a sulphur limit of 0.5%, and outside the ECA, of 3.5%. The west coast of the UK is outside an ECA." LLOYD'S LIST, 21 March 2013, p 3

Baltic NECA: clear rules shrouded in political mist – By John Pagni "Baltic Sea interests discuss NECA enforcement and review compliance technologies. Early March, a gloomy Helsinki was the venue for the Helsinki Commission's (HELCOM) stakeholder conference on the Baltic Sea Nitrogen-Oxide (NOx) Emission Control Area (ECA). The meeting aimed to enlighten companies presenting their solutions for compliance on the process of establishing a NECA under Annex VI of MARPOL. Initial speakers, from the IMO and Finland's Transport Safety Agency (Trafi), outlined the background behind the Baltic ECA, in this case nitrogen, following the sulphur ECA (SECA), and their respective pathways to legal enforcement. "Maritime NOx is acidic and unhealthy for humans and the environment, and causes nutrient pollution in the Baltic," explained Trafi senior maritime inspector Jorma Kämäräinen, whose view was upheld by several of the presenters, adding: "NOx emissions from ships will increase unless Tier III is applied to newbuildings after 2016." FAIRPLAY, 28 March 2013, p 27

Carbon capture could put cash in the bank "The results of a recent project to develop a concept design for chemical CO2 capture could one day produce economic benefits for operators. Instead of costing operators money, CO2 emissions could soon prove a valuable asset if a project involving DNV Research & Innovation Greece and a leading process modelling technology provider, Process Systems Enterprise (PSE), proves capable of commercialisation. The project was jointly financed by the two partners: the UK's Technology Strategy Board and the Research Council of Norway, under the EUROSTARS initiative." FAIRPLAY SOLUTIONS, April 2013, p 12

Introducing the SEEMP By Samuel Clawson "The IMO estimates that the measures included in the most recent amendments to MARPOL, Annex VI, could reduce ship emissions by 390 million tons by 2030. This could represent as much as a 25% reduction over current levels. Annex VI, as amended, entered into force on January 1, 2013. Ships of 400 gross tons and above are now required to keep on board a ship specific Ship Energy Efficiency Management Plan (SEEMP). The SEEMP may form part of the ship's Safety Management System and shall be developed taking into account the guidelines set forth by the IMO." SEAWAYS, April 2013, p 24

UK Chamber of Shipping warns of sulphur regulations' impact "A new report published by engineering consultancy AMEC shows that the targets for shipping companies to reduce their sulphur emissions by 2013 could cause adverse environmental effects and result in a loss of 2000 maritime service jobs, and place many more industrial jobs under threat. Commissioned by the UK Chamber of Shipping, on behalf of several North Sea and Western Channel shipping operators, the report is the first of its kind to examine the full impact of hitting sulphur targets." SHIPPING WORLD & SHIPBUILDER, April 2013, p 8

Spotlight on the European ECAs – By Timothy Wilson "Northern European Waters, one of the busiest global trading routes, is challenging for even the most experienced navigator and no less so for ship owners and charterers seeking maximum value for quality bunkers. When viewing the data covering the three ECAs of The Baltic, English Channel and North Sea, we see some significant variances in the level of catfines in fuel bunkered." BUNKER BULLETIN, April 2013, pp 26-27

Maersk Line retains slow steaming to meet CO2 targets - By Damian Brett "Maersk Line will continue to operate slow steaming in the long term to help it save fuel and hit new tougher CO2 emissions targets even if the supply and demand balance enables carriers to speed up vessels. Speaking at the Multimodal exhibition in Birmingham, England, Maersk Line head of environment and corporate social responsibility Jacob Sterling told Containerisation International that the company had increased its 2020 target to reduce CO2 emissions per container kilometre from 25% to 40%, compared with the 2007 level. It hit its initial target of 25% in 2012, he explained. One of the main reasons why the Danish carrier was able to hit its initial target early was its slow-steaming strategy, which has helped reduce fuel consumption and use spare market capacity. However, with predictions of an improved supply-demand balance by 2015, providing there is not a spate of vessel orders, there could be pressure on carriers to speed up vessels in order to meet demand." LLOYD'S LIST, 26 April 2013, p 3

Options open in the low-sulphur outlook "There are probably 100 different perspectives on how emissions regulations are supposed to develop, said Professor James Corbett who chaired the 34th International Bunker Conference held recently in Gothenburg. Unlike previous fuel changes in shipping, such as the switch from coal to oil, "this is a fuel switch with more opportunities than a single alternative," he said. As a percentage of world oil consumption, fuel oil has been declining. One solution proposed was a straight switch to distillates. However, more sophisticated engines capable of burning more kinds of oil, new technologies (scrubbers), and non-traditional fuels (LNG) are now competing as solutions for shipowners." FAIRPLAY, 9 May 2013, p 13

Sniffing gas "One of the issues tucked into the list of environmental debates at the International Maritime Organization this week is how to measure a ship's emissions. It is part of the long drawn-out compromise over how shipping could eventually be lumbered with a market-based

mechanism to curb the impact of greenhouse-gas emissions. Officially it is known as a measurement, report and verification system, a way to obtain a rolling picture of how much CO2 is emitted by shipping. There are four ways this can be done: bunker delivery note reporting, flow meters of fuel into the bunker tanks or into the engines, or direct measurement of the emissions out of the exhaust. There is, however, a very limited way this information will be used. While it can indeed give a more accurate way to see the global industry's fuel consumption and its direct CO2 emissions, the reporting and verification aspect is clearly geared towards an emission-trading scheme, or other financial mechanism." LLOYD'S LIST, 15 May 2013, p 2

Sea-reliant Finland finds it is not that easy being green - By Craig Eason "Impending environmental legislation from the European Union and International Maritime Organization is weighing heavily on Finnish shipowners. Any vessel working in the Baltic Sea or involved in shortsea freight between the Baltic and the rest of northern Europe — as most Finnish vessels do — is facing a number of challenges. These include the low-sulphur rules of 2015, the probable NOx rules of 2016, the ballast-water rules of the coming years and a host of others. In rising to these challenges, Finland is no different from any other country. But it is, to all intents and purposes, an island and its trade is almost exclusively through its ports. Almost all of its exports and imports go by sea. Shipowners point to the pending ballast-water technology requirements." LLOYD'S LIST, 21 May 2013, p 8