国际公约与规范的发展

Development of international conventions and rules

CCS
CHINA CLASSIFICATION SOCIETY
中 国 船 级 社

2012-11-22 Guangzhou,China

国际公约与规范的发展
Development of international conventions and rules

目录
Contents

CCS
CHINA CLASSIFICATION SOCIETY
中国船级社

I. 前言
Introduction

驱动IMO国际公约/船级社规范发展
(Promote the development of IMO Conventions and Class Society Rules)

- 安全(Safety)；
- 质量(Quality)；
- 防止海洋污染(Prevention pollution from ships)；

- 技术发展(Technology development)；
- 市场细分(Market segmentation)；
- 环境保护(Protection of Environment);
- 职业健康（OSH）
- 风险控制（Risk Management）

满足公众需求
(Satisfy the public demands)

II. 2015国际海事公约与规范总体态势

Status of international maritime conventions up to 2015

II.1 SOLAS

1. 目标型结构标准(GBS)

-Goal-based ship construction standards for bulk carriers and oil tankers.

适用于(apply to)：以下日期的150m以上的油船和散货船

	building contract	on/after 1 July 2016
or	keel laying	on/after 1 July 2017
or	delivery date	on/after 1 July 2020

For BC & OT of 150 m in length and above.
- single deck,
- with top-side tanks and hopper side tanks,
- excluding ore carriers and combination carriers.

差距分析(Gaps analysis)

partial inconformity	Fatigue Life, Residual Strength, Structural Redundancy, Human Element , Design Transparency, Structural Accessibility.
inconformity	Recycling.

II.1 SOLAS

1 | 2 | 3 | 4 | 5 | 6 | 7

1. GBS and CSR-H

- ✓ 1 July 2012, first draft of CSR-H
- ✓ 1July – Dec. 2012, first industry review
- ✓ 1 Jan—31 Mar 2013 Feedback/Re-work
- ✓ 31 March, 2013, second draft of CSR-H
- ✓ 1 Apr – June. 2012, second industry review
- ✓ 1 Jul—31 Aug 2013 Feedback/Re-work
- ✓ 31 Aug. 2013, third draft of CSR-H
- ✓ 1 Sept.-30 Nov. , approval by TC of IACS
- ✓ 1 Dec—30 Dec 2013 Final clean-up
- ✓ December 2013, adoption by IACS,
- ✓ Then submit to IMO for GBS verification

II.1 SOLAS

1 2 3 4 5 6 7 8 9

2. 船舶保护涂层性能标准(PSPC)

➢ 《原油船货油舱保护涂层性能标准》(MSC.288(87))和油船货油舱的涂层标准和原油船货油舱替代防腐措施（耐蚀钢）性能标准(MSC.289(87))也即将生效。

Performance standard for protective coatings for cargo oil tanks of crude oil tankers (MSC.288(87)) and Performance standard for alternative means of corrosion protection for cargo oil tanks of crude oil tankers(MSC.289(87)):

	building contract	on/after 1 Jan. 2013
or	keel laying	on/after 1 July 2013
or	delivery date	on/after 1 Jan. 2016

For crude oil tankers of 5,000 tones deadweight and above.

II.1 SOLAS

2. 船舶保护涂层性能标准(PSPC)

- 压载舱PSPC对造船业的挑战基本克服。

  Shipbuilding industry has overcome the challenge of implementation of the ballast tank PSPC standards.

- 油船货油舱涂层需在压载舱PSPC基础上做好准备。

  Be prepared for cargo oil tank PSPC standards.

- 加强耐蚀钢性能标准研究，验证，工业界应用和经验交流。

  More study, application, verification, experience-sharing are needed for alternative means of corrosion protection for cargo oil tank.

II.1 SOLAS

3. 噪声规则（Noise Code)

➢ 《船上噪声水平规则 》和SOLAS公约II-1章3-12条修正案已经MSC90批准。预计2014年7月1日生效，在此日期及之后新建的1600总吨及以上的船舶，噪声防护将成为强制性要求。

Code on Noise Levels on Board Ships has been approved by MSC 90, presumably be effective on or after 1 July 2014.

Apply to ships of not less than 1,600 gross tonnage the keel of which is laid or which is at a similar stage of construction on or after [1 July 2014] .

影响
Influences

① 增加造船成本 (new buildings cost increased)；

- ✓采取降噪措施 (noise-control measures) ；
- ✓提高造船工艺水平 (improve workmanship) ；
- ✓迫切需要采用准确噪声控制设计预报 (new technology predicting noise levels) ；
- ✓舱室噪声控制将是难点（difficulties in Noise level control in accommodation areas particular for cabins near engine room） ；
- ✓设计方要采用有效的声学设计技术 (acoustic design for new buildings) ；

② 增加交船难度 (more difficulties in ship delivery)。

II.1 SOLAS

4. 极地规则(Polar Code)

- 经历3年4届设计与设备分委会（DE）讨论，框架基本确定， 拟于2014年出台 (Main structure of the Polar Code is settled, hopefully completed in 2014)。
- 规则范围(Scope):

① 安全(Safety)

- ✓构造(Structure)
- ✓稳性(Stability)
- ✓消防(Fire Protection)
- ✓救生(Life Saving)
- ✓机械(Machinery)
- ✓水密完整性(Water-tight Integrity)
- ✓居住性(Accommodation)
- ✓通信(Communication)
- ✓航行(Navigation)
- ✓船员(Crew)
- ✓操作(Operation)
- ✓应急控制(Emergency Control)

② 环境保护(Environment Protection)

环境保护与航运、科考以及资源开发的平衡。

Balance between environment protection and shipping, science research and resource exploitation .

II.1 SOLAS

5.电子航海 (E-Navigation)

- 定义：E-NAVIGATION是通过电子方式在船舶和岸上协调收集、集成、交换、显示和分析海事信息，以增强船舶从码头至码头之间的航行及相关服务，实现海上安全、保安和海上环境保护的目的。

E-navigation is the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment.

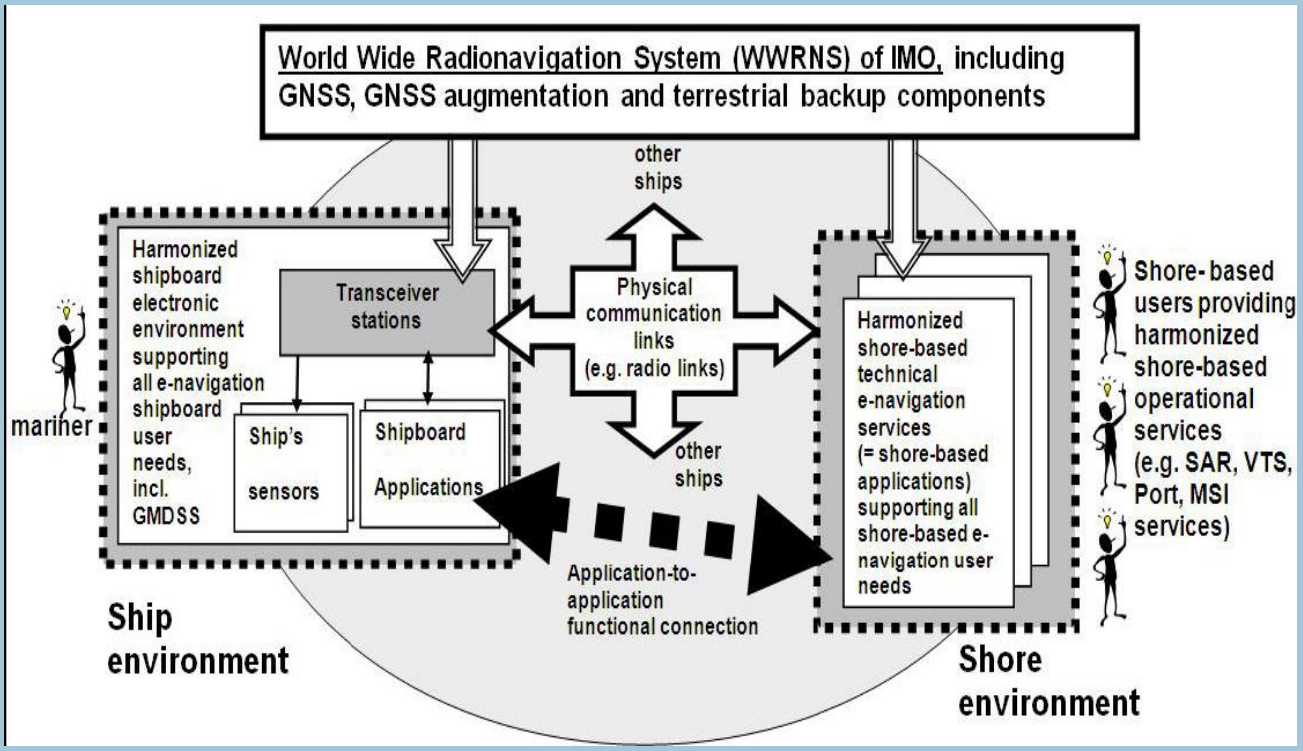
- E-NAVIGATION的目的是通过海上航行系统和岸上支持服务的协调来满足现在和将来的用户需求。

Purpose： meet present and future user needs through harmonization of marine navigation systems and supporting shore services.

II.1 SOLAS

电子航海架构

E-Navigation Structure



6.石棉(Asbestos)

- 自2011年1月1日起适用于SOLAS公约的所有船舶应禁止含有石棉的材料新装上船。

"From 1 January 2011, for all ships, new installation of materials which contain asbestos shall be prohibited."

- 两个关键问题(Two key questions)：

1.如何验证？ IACS制定的统一解释（UI SC 249）对船级社执行方式和检查范围进行了统一。MSC90批准了IACS提出的对SOLAS无石棉要求的统一解释。

How to verify? IACS issued UI SC 249 to unify the way of implementation of this SOLAS regulation by ROs, which was approved by MSC 90.

2. 石棉的阈值： 将在MEPC 64成立的通信组中讨论， Threshold of asbestos： 1% or 0.1%, to be discussed at the Correspondence Group

7.客船安全返港 SAFE RETURN TO PORT FOR PASSENGER SHIP

- 适用范围和实施日期 SCOPE AND ENFORCEMENT:

适用于2010年7月1日及以后建造的，载重线船长120m及以上或具有3个及以上主竖区的所有客船 .

be mandatory for passenger ships constructed on or after July 1, 2010, having a length of 120m or more or having three or more main vertical zones.

- 要求 REQUIREMENT:

当事故未超过规定的漫水或火灾限界时，船舶应能安全返港，并给船舶上人员提供安全区。当火舱事故超过限界时，系统应能支持有续撤离，并在3小时内可用。

These vessels have to be able to return to port after a casualty case, not exceeding a defined flooding or fire casualty threshold, and provide all persons on board basic services in so-called "save areas". For fire casualty cases exceeding the casualty threshold, systems for supporting orderly evacuation have to be available for three hours.

- 难点CHALLENGE:

需要对重要系统进行全面评估，并对关键系统进行详细的评估。

an overall assessment of all essential systems and a detailed assessment of critical systems are needed.

将导致船舶的推进系统和操舵系统需要冗余配备，并进行分舱。

Main propulsion and steering system should be redundant and separated.

II.1 SOLAS

- 第二代完整稳性(2nd generation criteria)

SLF分委会正在制定第二代完整稳性，将考虑瘫船模式基础上增加对船舶在波浪状态下的四种稳性失效模式（稳性全丧失、参数横摇、骑浪/横甩和过度加速度）进行三层薄弱性衡准的校核。

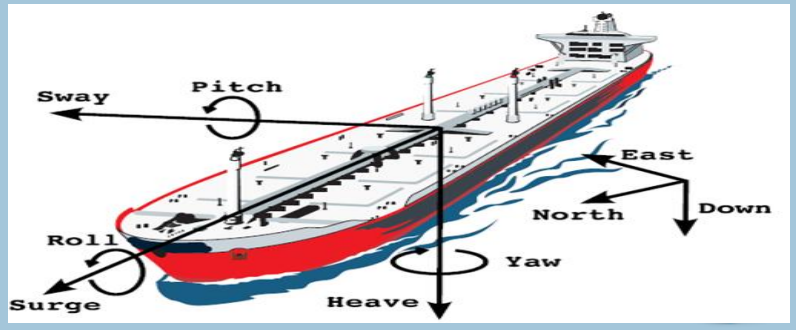
SLF is developing 2nd generation criteria. There are new stability failure modes i.e. pure loss of stability, parametric roll, surf-riding/Broaching, excessive acceleration based on dead ship condition.

- 液货船强制配备稳性装载仪

Mandatory fitting of stability instrument on all oil tanker)

这是公约（MARPOL、IBC和IGC）的新要求。

(This is new requirement of MARPOL、IBC and IGC.)



II.1 SOLAS

9. 舱室试验 Testing watertight boundaries

- **SOLAS requirements (II-1/11)**

尖舱、双层底（包括箱型龙骨）和内底板，和构成船舶水密分舱的装载液体的舱，应以与相关设计压力相对应的水压头进行密性和结构试验。

The forepeak, double bottom (including duct keels) and inner skins, and tanks which are intended to hold liquids (which form part of the watertight subdivision of the ship), shall be tested for tightness and structural strength with water to a head corresponding to relevant design pressure.

- **IACS proposal for SOLAS amendment and new guidelines**
  1. MSC 86/23/13 ((Cook Islands, Marshall Islands, IACS))
  2. DE 56/16 and DE 56/INF.11 (IACS)
  3. Supporting papers by China, Japan and Korea (shipyards' quality systems, e.g. ISO 9001)
- **DE 56 generally agreed with IACS proposal as well as the C/J/K suggestions**
- **Question:**

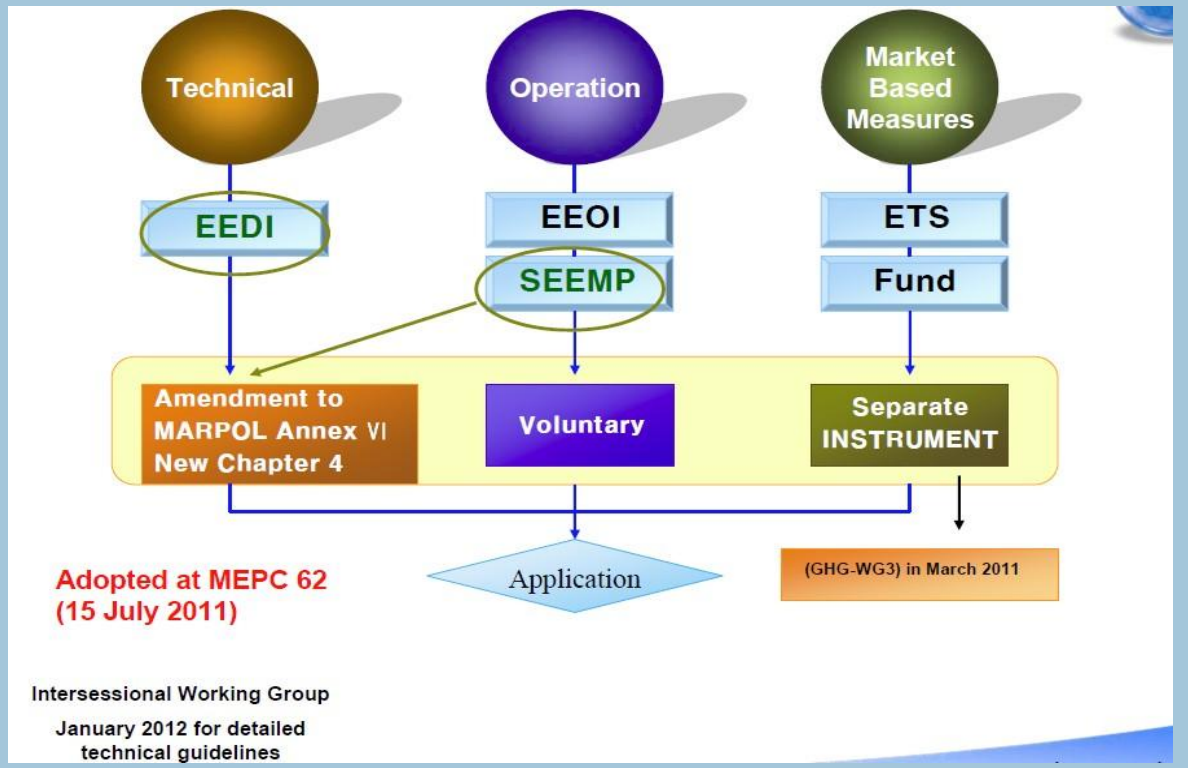
1. Refinement of the draft guidelines (technical aspect, IACS submission to DE 57)
2. Shipyards' quality systems WRT tank testing (Industry JWG is to discuss this issue)

II.2 MARPOL

1 | 2 | 3 | 4

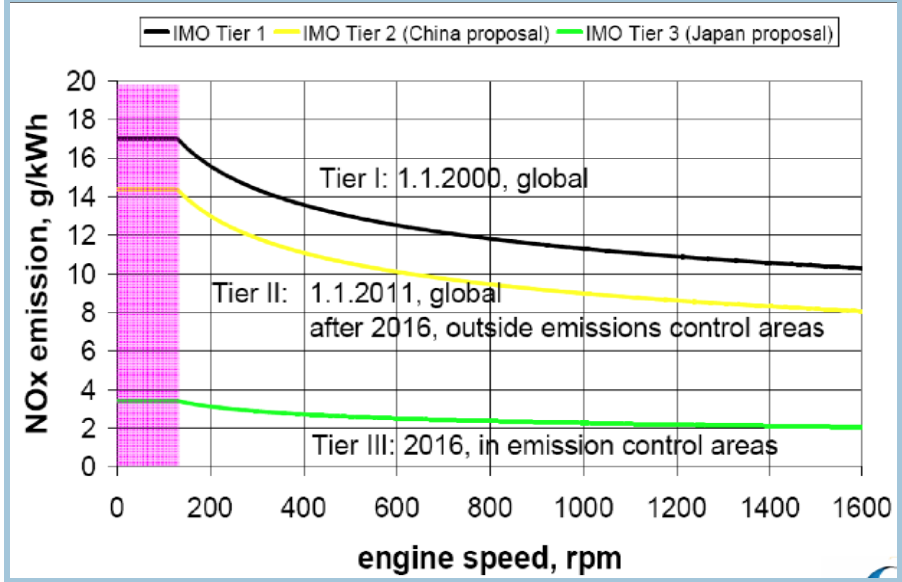
主要新要求
(major new amendments)

- ✓ 能效指数(EEDI)
- ✓ SOx
- ✓ NOx

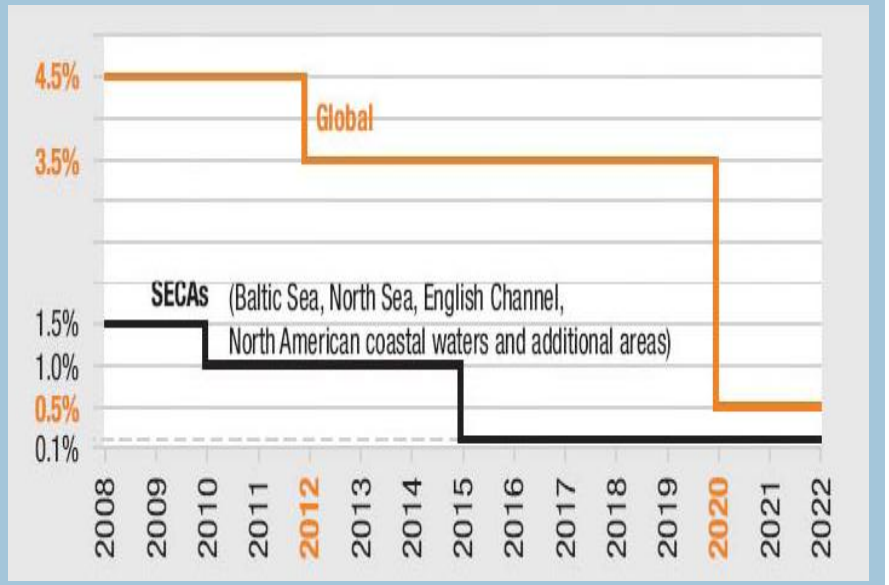


II.2 MARPOL

1 | 2 | 3 | 4



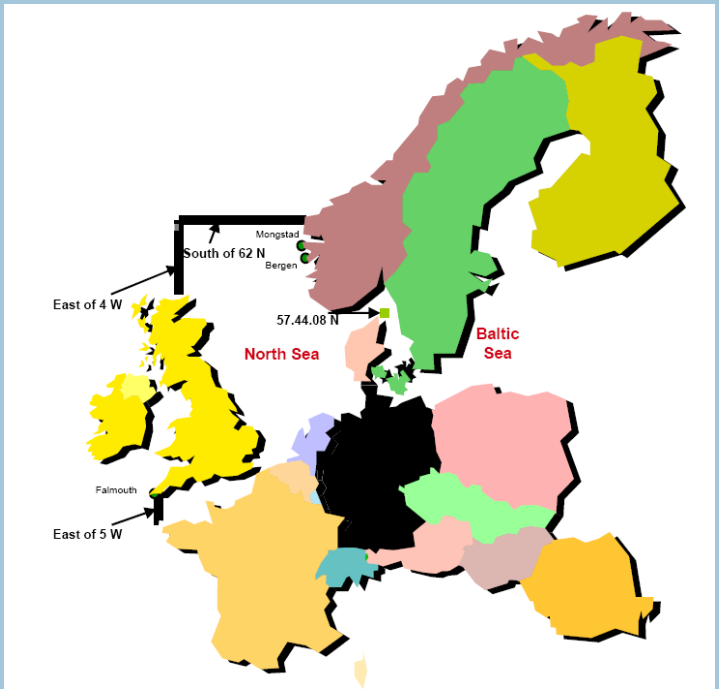
NOx Tier I-III 减排时间表
(NO_X emission regulation)



SOx Tier I-III 减排时间表
(SO_X emission regulation)

II.2 MARPOL

1 | 2 | 3 | 4



原有的控制区(Original ECA) —SOx

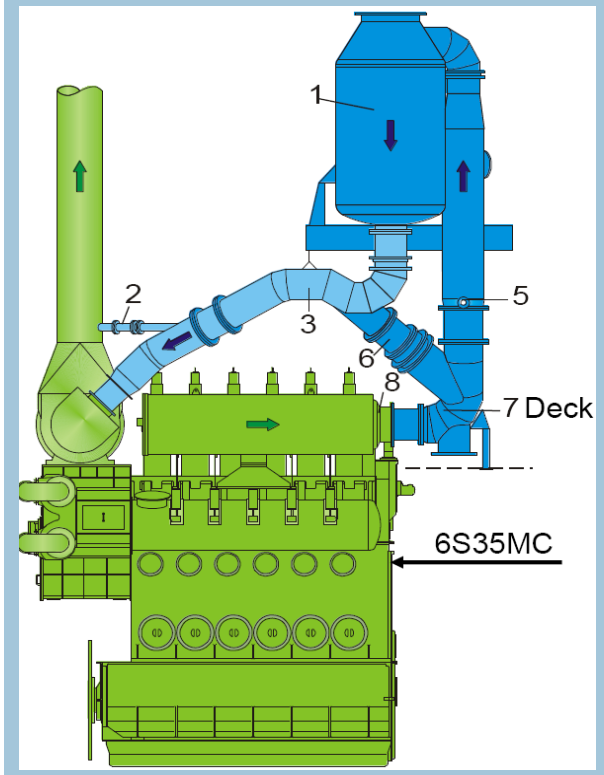
- 波罗的海(Baltic Sea)
- 北海(North sea)

新增控制区(Added ECA) —NOx、SOx

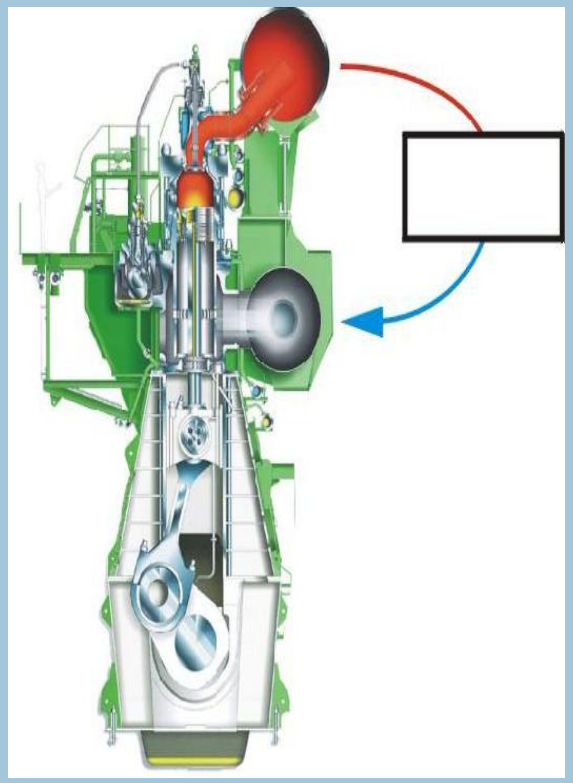
- 北美控制区（North America）
- 加勒比海（Caribbean Sea area ）

II.2 MARPOL

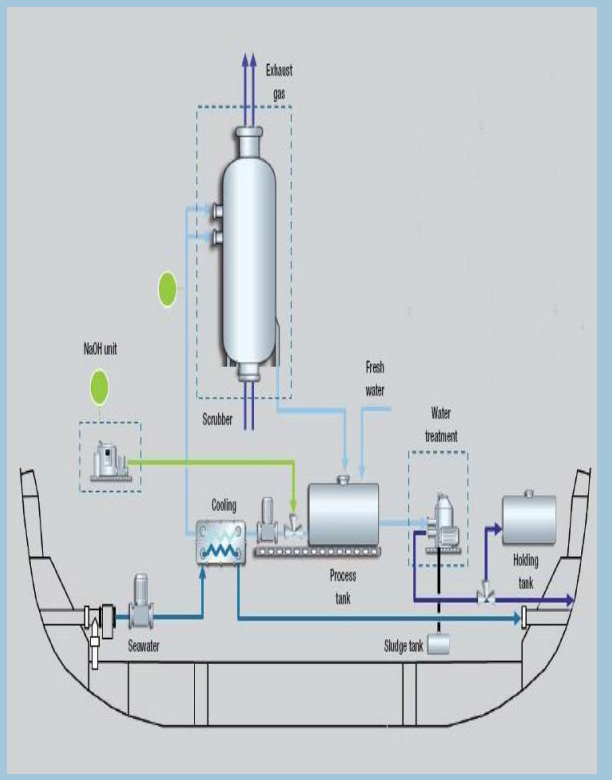
1 | 2 | 3 | 4



脱硝的新技术SCR(选择催化减排技术)
Selective Catalytic Reduction



脱硝的新技术EGR(废气循环减排技术)
Exhaust Gas Recycle



脱硫的洗涤减排技术
Scrubber

II.3 香港公约(Hong Kong Convention)

1 | 2 | 3

生效条件(Entry into force shall subject to the following)

1. 不少于15个国家加入(ratifications by no less than 15 states)；
2. 上述国家的商船总吨位合计不少于4.17亿GT(The combined merchant fleets of these states constitute not less than 417 million gross tonnage)；
3. 上述国家在过去10年的最大年度总拆船量合计不少于1.25千万GT(The combined maximum annual ship recycling volume of the States mentioned above during the preceding 10 years constitutes not less than 12,500,000 gross tonnage)；
4. 满足上述条件后24个月以后生效，预计2016年左右达到生效条件(Enter into force twenty four months after meeting the abovementioned requirements (around 2016).)。

II.3 香港公约(Hong Kong Convention)

1 | 2 | 3

✓ 船厂：针对潜在的法律和经济风险，船厂应全面提升对供应链的管理和控制，防止不符合公约要求的产品装船所导致的风险（如索赔、弃船）。

Improve the management and control on supply chain to deal with the potential legal and economic risks. To prevent risks such as claim and ship abandonment caused by installation of unqualified products onboard.

✓ 船舶在营运阶段：清单应始终保持更新。

IHM shall be updated throughout the service of the ship.

✓ 船舶拆解时：经过认可的拆船设施（拆船厂）应按照公约要求和IHM对有害物质进行回收和无害化处理。

Hazardous Materials shall be recycled and environmentally soundly dealt with by the approved recycling facilities as per the requirements of the Convention and IHM.

II.4 压载水公约(BWM)

1 2

- ✓ 压载水公约生效条件(the condition for entry-into-force of BWM)：
  - 30个国家(30 states)，
  - 35%世界商船总吨位(35% of the gross tonnage of the world's merchant shipping)，
  - 12个月以后生效(twelve months)。
- ✓ 截止2012年7月31日(As of 31 July 2012)：
  - 36个国家(35 states)，
  - 29.07%世界商船总吨位(29.07% of the gross tonnage of the world's merchant shipping)。

生效条件尚不满足(The condition for entry-into-force has not been satisfied.)

II.4 压载水公约(BWM)

1 2

- ✓ 主要问题 （Major problems）
  - ✓ 船舶安装数量极少（Very small percentage of world fleet has installed the BWMS onboard）
  - ✓ 船东对BWMS在港口国检查中采用取样分析方法的不确定性的担心导致宁愿处于一种观望状态(The uncertainty of the sampling and analysis method on BWMS used during port State inspection discourages shipowners from early installation before the entry into force of BWM Convention.)
  - ✓ 压载水公约的生效时间难以预计，提前安装BWMS成本高，且性能不具优势(Whilst the uncertainty of entry into force of the BWM Convention still remains, an early installation of BWMS will mean additional cost and relatively lower function.)
  - ✓ 行业内正在研究压载水处理的替代方法(Alternative methods of ballast water treatment are also under development .)
- ✓ MEPC 64决定不改变D-2标准的实施时间表，但考虑制定IMO大会决议来解决上述问题

Yet, MEPC 64 decided not to change the time schedule of D-2 standard (BWMS), but to develop an Assembly resolution to resolve.

II.5 海事劳工公约(MLC)

1 2

- ✓ 海事劳工公约生效条件(the condition for entry-into-force of MLC)：
  - 30 个ILO成员国(30 ILO members)，
  - 33%世界船舶总吨位(33% of the gross tonnage of ships)，
  - 批准书登记之日12个月以后生效(twelve months after the date of registered ratifications)。
- ✓ 目前状态(current condition)：
  - 29个ILO成员国(29 ILO members)，
  - 58.5%世界商船总吨位(58.5% of the gross tonnage of the world's merchant shipping)。
- ✓ 预计(estimate)：
  - 2012年8月30个ILO成员国(30 ILO members by August 2012)，
  - 2013年8月《公约》将生效(the Convention will enter into force by August 2013)。

II.5 海事劳工公约(MLC)

1 2

✓ 公约覆盖船员的公平就业条件，安全和良好的工作和生活环境，享受健康保护，医疗各项福利等。

The Convention covers fair treatment of crew for their work, safe and sound work/live environment, welfares including safety protection and health care etc.

✓ 造船界应注意：

《公约》中海员舱室更新的要求、以及防止噪声和振动要求的实施（实施难点）。

The shipbuilding industry should pay attention to:

- implement the updated requirements in the Convention on seafarers' accommodation and the requirements of prevention of noise and vibration (Implementation difficulty).
- ILO与IMO的不同机制导致实施要求不清晰。Unclearness in the implementation of MLC due to different work mechanism in between ILO and IMO

III.国际海事质量与监管体系

Layout of international maritime quality supervision

III.国际海事质量与监管体系

International quality and control system on maritime sector

Shipping	• PSC, EU, USCG, P&I, Vetting System, Flag State
Ship Building	• Administration, Quality, Safety, SCF, Bank
Class Society/ROs	• Flag State, QACE, ACB, Ro Code, PSC
Flag State	• IMO, PSC, III Code

III.国际海事质量与监管体系

International quality and control system on maritime sector

- 船厂主管机关是船旗国还是所在国？(Who is the administration of shipyard? Flag State or Shipyard' s country?)，
- ISO 9000体系不足够（需要ISO 14000/18000） ISO 9000 not adequate（need ISO 14000/18000），
- 银行船舶融资安全 (safety of financing of newbuildings)，
- 验船师安全(Safety of surveyors)，
- 区域组织要求 (Regional requirement (e.g. EU))，
- 船舶建造档案，信息透明度和知识产权保护(SCF ,Information transparency and IPR)，
- 未来发展/卓越绩效体系(Future development and EFQM)。

IV. 结论
Conclusions

From technical aspect :

•技术推升市场；
•Driving force to the market.
•从政府驱动、外部驱动到自我驱动。
From government and exterior driven to self-driven.
•自主研发，科技创新；
Independent research and development, Innovation of science and technology.
•市场细分，找准定位，下一代船型研发；
Identify the target ,new generation ship type development, market segmentation.
•符合市场需求的船型是决定定单的关键；
The ship type matched the market demands is the key point to the purchase order.

From quality aspect :

•最高标准；
The highest standard.
•从被律到自律；
From being regulated to self-regulated.
•企业生产流程优化；
Enterprise production process optimization.
•过程管理，高质量船；
Process management, high-quality ships.
•追求卓越。
Pursuit of excellence.

技术、质量及环保要求的发展
将推动市场竞争，优胜劣汰，重新确立格局。

The development of technology/quality/environmental friendly will promote the market competition, survival of the fittest, and shipbuilding market pattern being shifted to new.

感谢关注！
Thanks for attention!

CCS
CHINA CLASSIFICATION SOCIETY
中国船级社