

Seminar
“IMO en EU regulations: What’s next?”

Woensdag 7 december 2016





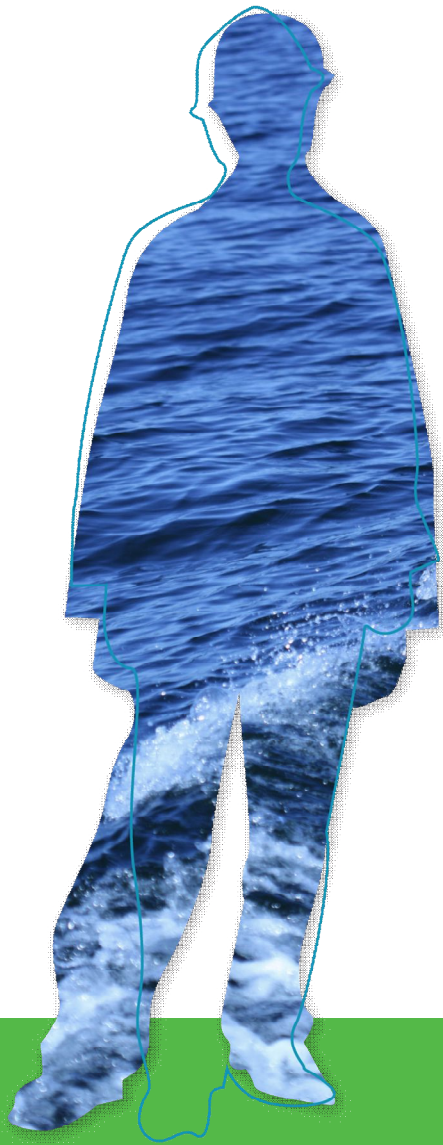
Programma

<i>13.00 uur</i>	<i>Ontvangst</i>	
13.30 uur	Openingswoord en introductie door dagvoorzitter	Martin Dorsman Koninklijke Vereniging van Nederlandse Reders (KVNDR)
13.40 uur	Asbestregelgeving: Impact op schepen en werven	Marc van de Poel Maritime Asbestos & Recycling Consultants
14.10 uur	Emissies van stikstofoxiden: De consequenties van de aanwijzing van NECA's	Dick Brus Min. Infrastructuur & Milieu
14.40 uur	Zwavelemissies: SECA's, Europese en mondiale eisen	Niels Lyklema Min. Infrastructuur & Milieu
<i>15.10 uur</i>	<i>Pauze</i>	
15.30 uur	Ontwikkelingen op het gebied van EEDI & Minimum Power Requirements	Sander den Heijer Netherlands Maritime Technology (NMT)
16.00 uur	CO2 en scheepvaart: Wat komt er op reders af?	Henk-Erik Sierink Europese Commissie (DG CLIMA)
16.30 uur	Vragen en discussie	Onder leiding van dagvoorzitter
<i>17.15 uur</i>	<i>Netwerkborrel</i>	
<i>18.00 uur</i>	<i>Einde bijeenkomst</i>	



IMO & EU Regulations: What's next?

Asbest & verordening inzake scheepsrecycling



Marc van de Poel (Ing)

Directeur

Adviesbureau van de Poel BV
M.a.r.c BV

Secretaris

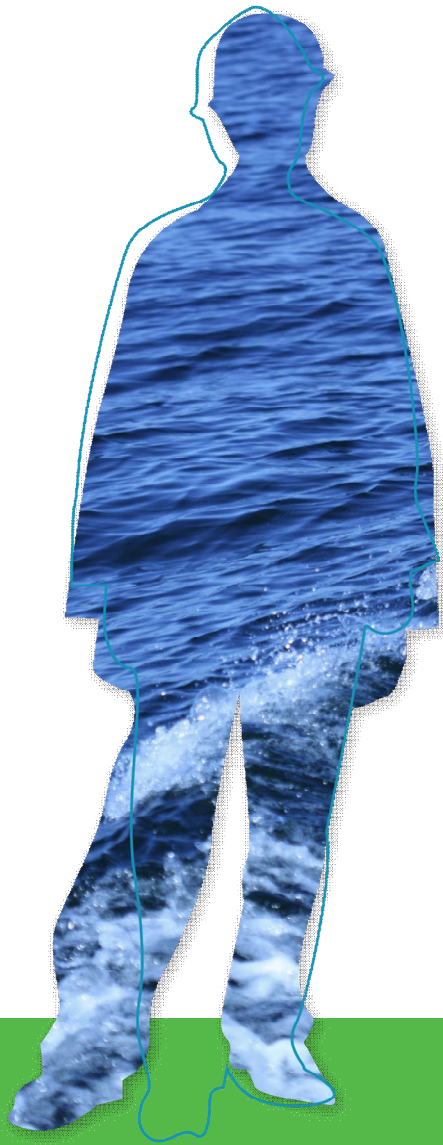
International HazMat Association

Mobiel 06 26 530 514

Email marc@vandepoel.nl

van de poel | m.a.r.c





Asbest

Waarom een asbestinventarisatie ?

Wettelijke regelingen

Wat betekent het in de praktijk ?

van de poel | m.a.r.c



Waarom een asbest inventarisatie ?

van de poel | m.a.r.c



Asbest kan leiden tot een blootstellingsrisico voor opvarende (RI&E)

Het is wettelijk verplicht om asbest in beeld te brengen !!



Regelgeving



- 2002, SOLAS, MSC/circ 1045, "Guidelines for maintenance and monitoring of on-board materials containing asbestos";
- 2009, HKC, verplichting om een IHM op te stellen (nog niet geratificeerd);
- 2010, SOLAS, MSC.1/circ 1375, "Information on prohibiting the use of asbestos on board ships (3 december 2010);
- 2011/12, SOLAS, MSC.1/circ 1375/Rev 1 "Unified interpretation of SOLAS regulation V/23. (28 mei 2012);
- 2013, EU, Verordening EU 1257/2013 Inzake Scheepsrecycling;
- 2015, MEPC, resolution 269(68), "Guidelines for the inventory of Hazardous Materials";
- 2016, EU, "EMSA's best practice guidance on the Inventory of Hazardous Materials

In de praktijk

van de poel | m.a.r.c



Sinds 2002

- Nieuwe installatie van asbest vrijwel volledig verboden;
- Verantwoord beheer van het reeds aanwezige asbest;
- Voorkomen van nieuwe installatie.

Vanaf 2011

- Volledig asbestverbod.
- “illegaal” geïnstalleerd asbest moet binnen drie jaar worden verwijderd.

EU verordening inzake scheepsrecycling

- Verplichting om voor 31 december 2020 te beschikken over een IHM.



EU verordening scheeprecycling (IHM) bestaande schepen

- Uiterlijk 31 december 2020 moeten alle schepen die de vlag van één van lidstaten voeren of die een haven of ankergrond van één van de lidstaten aandoen beschikken over een Inventaris gevaarlijke stoffen;
- Minimaal: Asbest, Ozon bedreigende stoffen, TBT in anti fouling, PCB's, (PFOS);
- Bijlage 2 stoffen voor zover praktisch mogelijk;
- EMSA's best practice guidance on the Inventory of Hazardous materials.





- Nationale regelgeving van het land waar het schip zich bevindt is belangrijk;
- In veel landen moet verplicht een deskundig bedrijf worden ingeschakeld;
- Amateuristisch verwijderen kan leiden tot grote gevolgschade



Asbest verwijderen in Nederland

van de poel | m.a.r.c



Wetgeving

- Arbeidsomstandigheden wet
- Producten besluit asbest
- Asbestverwijderingsbesluit



Asbest verwijderen in Nederland

van de poel | m.a.r.c



Betrokken instanties: ILT, AI en CI

Wettelijke meldingsprocedures

Inventarisatie conform SC540

Uitvoering conform SC530

Eindkeuring door een door de RvA geaccrediteerd Lab.

Moet mogelijk worden gemeld bij het asbestvolgsysteem



WWW.VANDEPOEL.NL



van de poel | m.a.r.c



telephone +31 26 327 1815 mobile +31 6 26530514



Ministry of Infrastructure and the
Environment

Noordzee NOx Emissiebeheersgebied (NECA)

Platform Schone Scheepvaart
IMO & EU regulations: What's next

7 december 2016

Dick Brus
Ministrie van Infrastructuur en Milieu
dick.brus@minienm.nl

8 December 2016



Persbericht



Ministerie van Infrastructuur en Milieu

Schepen op de Noordzee milieuvriendelijker

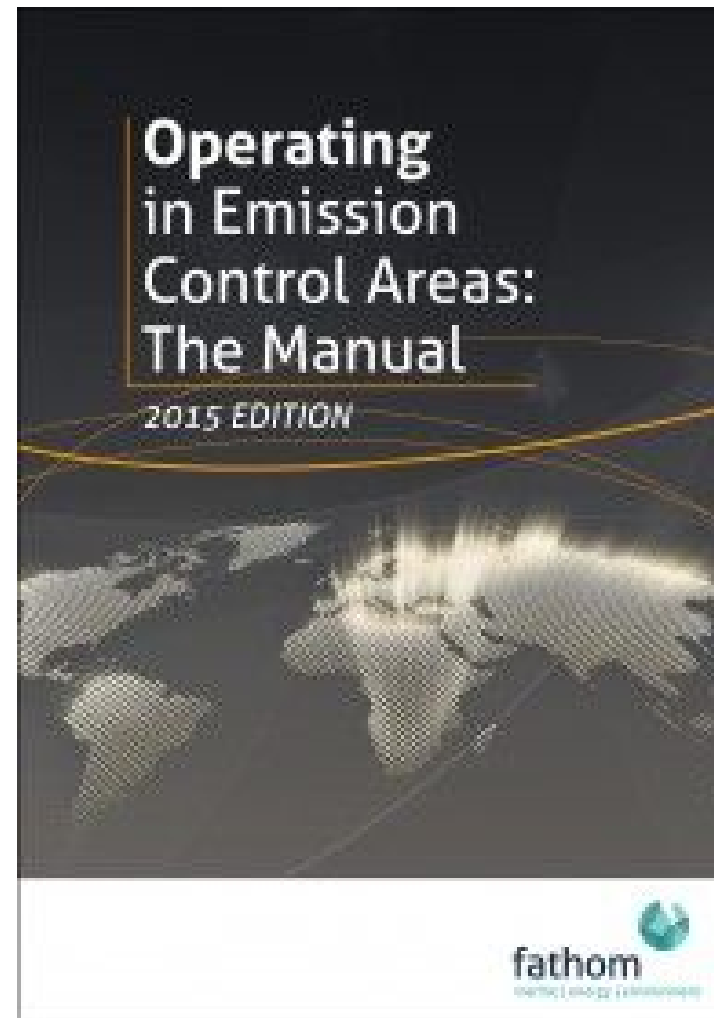
31 oktober 2016 - 14:17

Alle nieuwe schepen die op de Noordzee varen moeten vanaf 1 januari 2021 voldoen aan de nieuwe NO_x (stikstofoxide) normen. Dat heeft de milieucommissie van de Internationale Maritieme Organisatie (IMO) van de VN deze week besloten met alle deelnemende lidstaten. De norm wordt ruim 70% strenger dan de huidige norm en levert daarmee een belangrijke bijdrage namens de scheepvaart voor de luchtkwaliteit in Nederland.



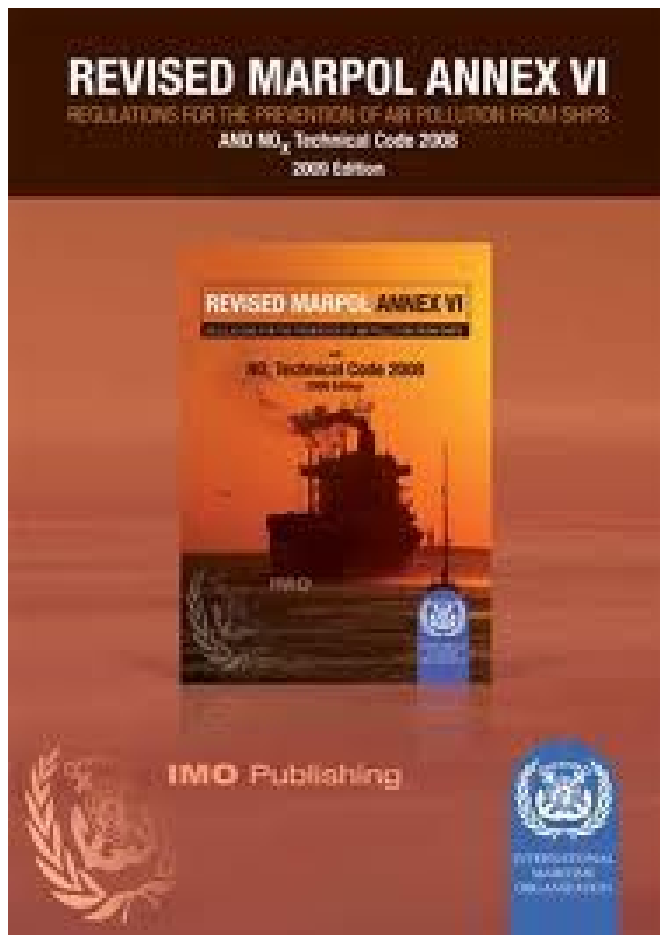
Noordzee NECA

1. IMO NOx afspraken
2. Wat is precies afgesproken?
3. Wanneer moet je aan de nieuwe normen voldoen?
4. Vrijstellingen
5. Andere NECA's
6. Handhaving





NO_x, 2008, REVISED MARPOL ANNEX VI

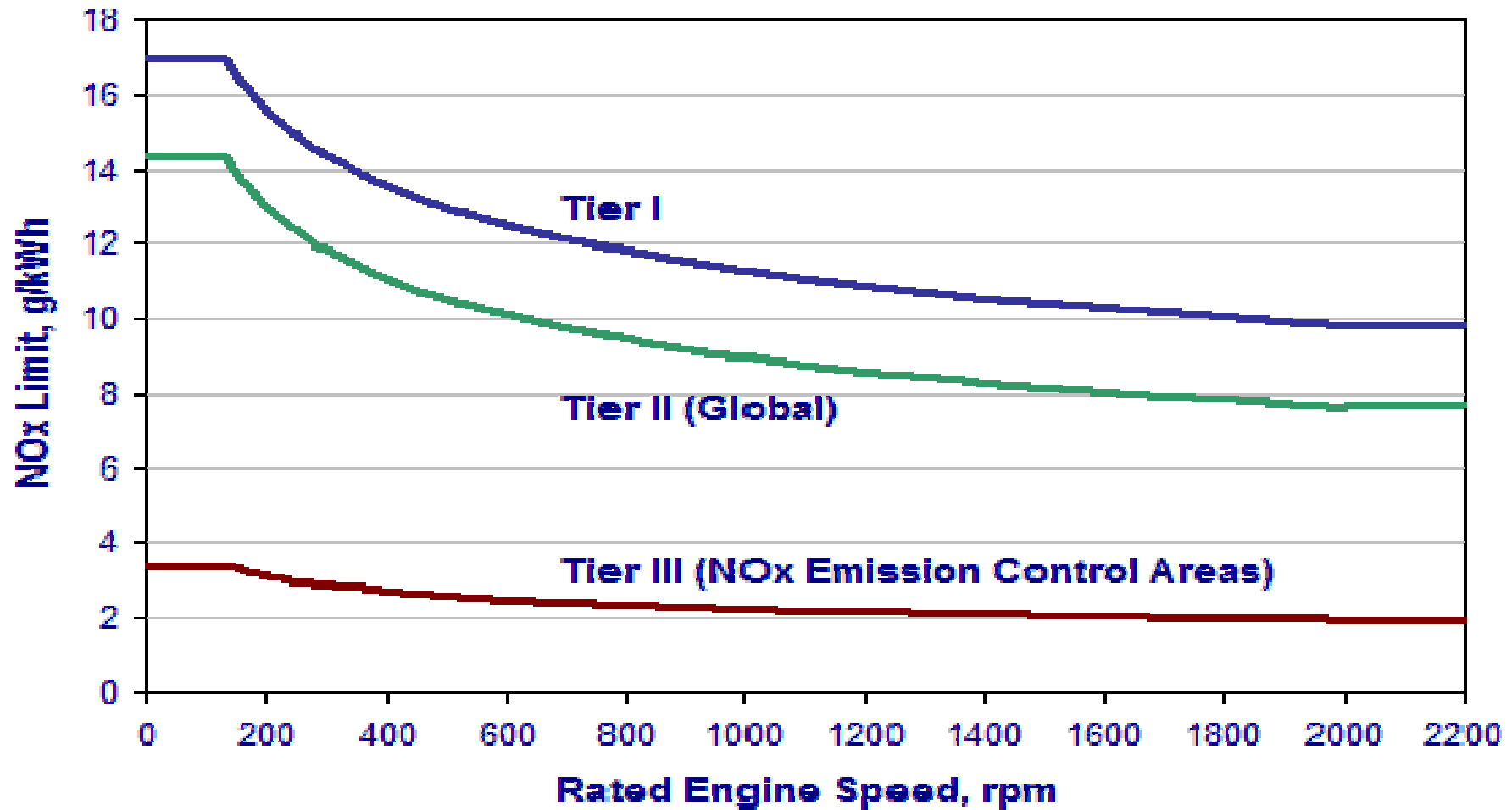


For NO_x Engines installed on a ship:

1. 1990-2000, large engines with a power output of more than 5,000kW and cylinder replacement above 90 litres must comply with the existing (after 2000) limits, provided that there is an approved method
2. 2000-2010 existing limits, Tier1
3. 2011- Tier II, on average 20% stricter than tier 1
4. 2016 -(or after the date of circulation for adoption of the new emission control area, or a later date) Tier III, ships in NO_x emission Control Areas NECA's, on average 80 % stricter



NO_x, 2008, REVISED MARPOL ANNEX VI





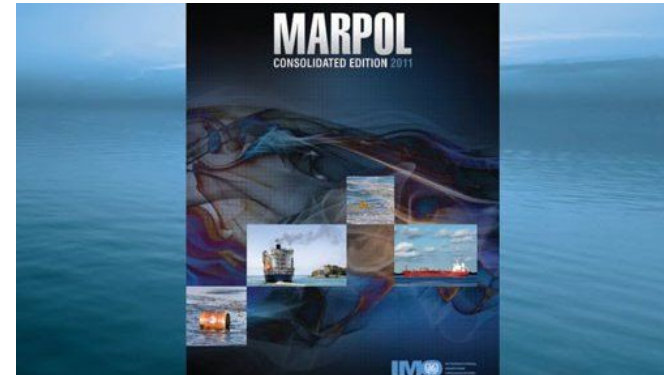
NO_x, Noordzee NECA besluit:



- Formeel heeft de IMO het voorstel aangenomen (approved).
- In de volgende bijeenkomst van MEPC, in juni 2017, zullen de laatste juridische details worden besproken, en moet het voorstel definitief worden aanvaard (adopted).
- Dan zal het 24 maanden, juni 2019 in werking treden, na een periode van silent approval (met 1 januari 2021 als datum dat nieuwe schepen moeten voldoen
- Ook Oostzee NECA aanvraag is parallel goedgekeurd



MARPOL Bijlage VI wijzigingen



Regulation 13, Nitrogen oxides (NO_x)

Tier III

5.1 The operation of a marine diesel engine that is installed on a ship:

5.1.3 that ship is constructed on or after 1 January 2021 and is operating in the North Sea Emission Control Area;

Emission Control Area:

6.3 the North Sea area, as defined in regulation 5 of MARPOL Annex V; and

6.3 the Baltic Sea area as defined in regulation 1 of Annex I



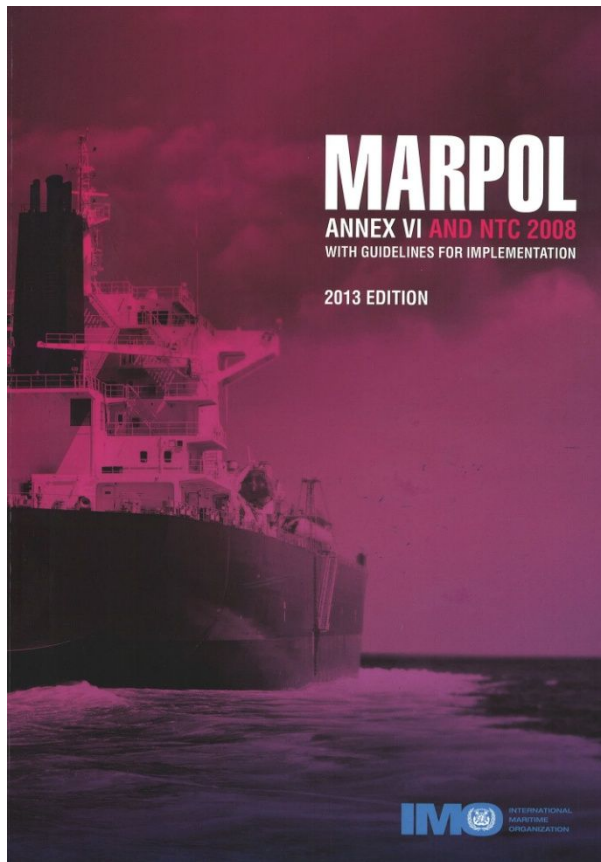
Wat is een nieuw schip?

Ships constructed means ships the keels of which are laid or that are at a similar stage of construction





Certificering



Motor moet worden gecertificeerd volgens gereviseerde NOx technische code 2008, met Tier III (NECA) normen en testcycli

Na 2008 verdere afspraken over:

- Guidelines for engines fitted with Selective Catalyst Reduction (SCR) systems
- Combined engine/SCR systems testing on testbed /on board
- Engines fuelled solely by gaseous fuels
- Certification dual fuel engines
- Guidelines for non-identical replacement engines



Vervangen motor

Voor belangrijke wijzigingen waarbij een scheepsdieselmotor vervangen wordt door een niet-identieke scheepsdieselmotor of een aanvullende scheepsdieselmotor geïnstalleerd wordt, zijn de normen van kracht die gelden op het tijdstip van de vervanging.

Belangrijke wijziging:

1. de motor vervangen wordt door een scheepsdieselmotor of een aanvullende scheepsdieselmotor wordt geïnstalleerd, of
2. een aanmerkelijke aanpassing, zoals omschreven in de NOx Technische Code 2008, plaatsvindt van de motor, of
3. het maximumtoerental van de motor met meer dan 10% verhoogd wordt ten opzichte van het maximumtoerental op het oorspronkelijke certificaat van de motor.

For the replacement of a marine diesel engine with a non-identical marine diesel engine on or after 1 January 2016, if it is not possible for such a replacement engine to meet the Tier III standard set forth in paragraph 5.1.1 of this regulation, then that replacement engine shall meet the Tier II standard set forth in paragraph 4 of this regulation



Wanneer heb ik recht op vrijstelling?

Exemption

NO_x emissions from engines that occur immediately following building and sea trials of a new ship, or before and following converting, repairing, and/or maintaining the ship are temporarily exempted provided the following conditions are met:

- .1 the engines meet the Tier II NO_x limits; and
- .2 the ship sails directly to and from the shipyard or other repair facility, does not load or unload cargo during the duration of the exemption,

The exemption described in 5.3 applies only for the following periods:

- .1 for newly constructed ships, the period beginning at the time the ship is delivered from the shipyard, including sea trials, and ending at the time the ship directly exits the NO_x ECA(s) or,
- .2 for ships with Tier II engine(s) undergoing conversion, maintenance, or repair, the period beginning at the time the ship enters the NO_x ECA(s) and proceeds directly to the shipyard or other repair facility, and ending at the time the ship is released from the shipyard or other repair facility and directly exits the NO_x ECA(s) after performing sea trials, if applicable.
- .3 for ships with dual fuel engines undergoing conversion, maintenance, or repair, in case the ship is required to not have gas fuel or gas cargo on board due to safety requirements, the period beginning at the time the ship enters the NO_x ECA(s) or when it is degassed in the NO_x ECA and proceeds directly to the shipyard or other repair facility, and ending at the time when the ship is released from the shipyard or other repair facility and directly exits the NO_x ECA(s) or proceeds dire



North Sea Emission Control Area

The North Sea area means the North Sea proper including seas therein with the boundary between:

- .1 the North Sea southwards of latitude 62° N and eastwards of longitude 4° W;
- .2 the Skagerrak, the southern limit of which is determined east of the Skaw by latitude $57^{\circ} 44.8'$ N; and
- .3 the English Channel and its approaches eastwards of longitude 5° W and northwards of latitude $48^{\circ} 30'$ N.





Emission control area's (for NOx and SOx)





NO_x, NECA area's

Approved:

- North America Coast
- US Islands in the Caribbean
- North Sea
- Baltic Sea



Mentioned as possible future NECA's:

- Japan
- South East Asia (Singapore with others)
- Australia/New Zealand
- Northern America including Mexico
- Mediterranean
- North Norway



Handhaving port state control

Noordzeelanden en
Oostzeelanden vervolgen
hun overleg om afspraken
te maken over een
uniforme handhaving





Ministerie van Infrastructuur en Milieu



De Nederlandse Maritieme Strategie 2015-2025:

- Terugdringen van emissies
- Duurzaam gebruik van de zee en zeehavens



Ministerie van Infrastructuur en Milieu



Mondiale zwavelnorm 2020

IMO besluitvorming en
mondialeopgave

Niels Lyklema
– DG Bereikbaarheid

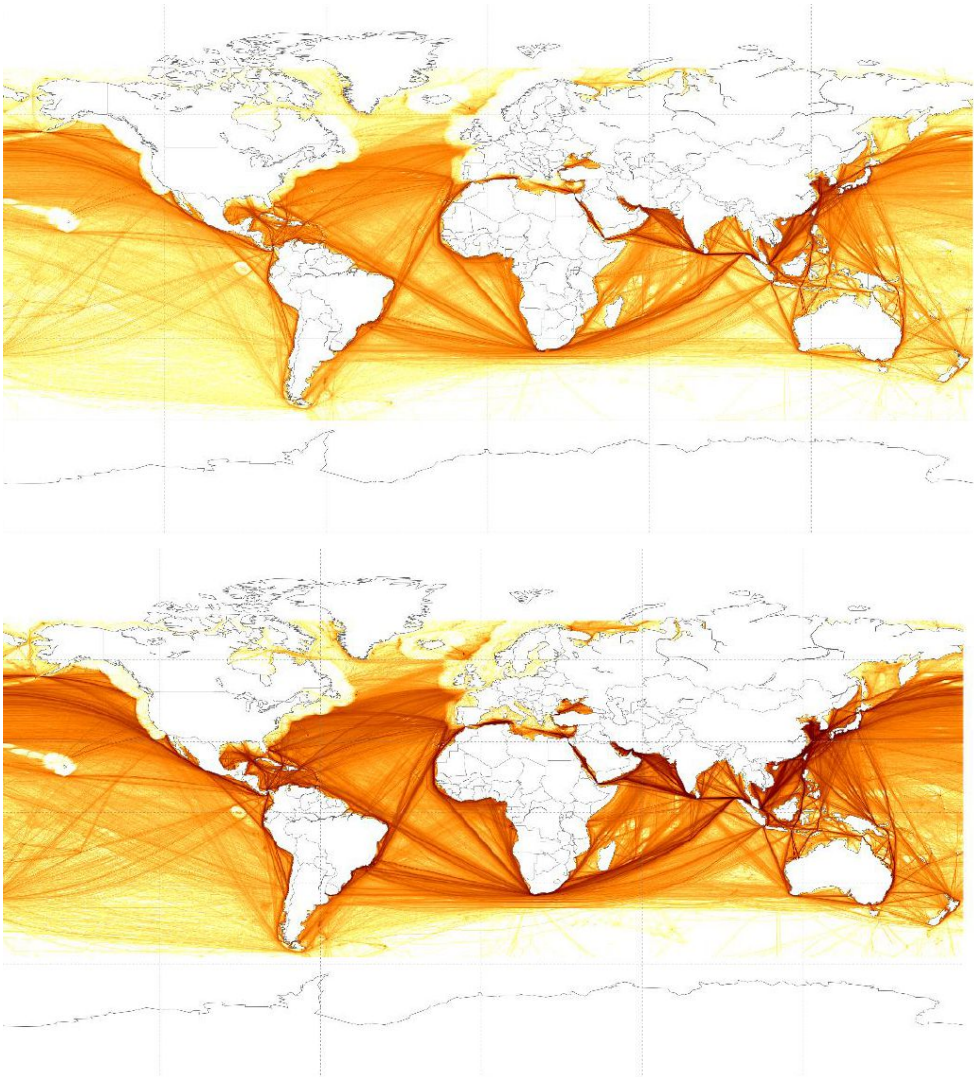
Niels.lyklema@minienm.nl

+31 (0)6 - 29 57 31 31

8 december 2016



2020



Uitstel



Besluitvorming

Opgave

Handhaving

Vervolg



Besluitvorming mondiale zwavelnorm

MEPC 58 (2008) amendement MARPOL Annex VI, Regulation 14:

The sulphur content of any fuel oil used on board ships outside ECAs shall not exceed the following limits (14.1):

- 3.50 % m/m from 2012
 - 0.50 % m/m from 2020
- Regulation 4 laat alternatieven als scrubbers toe,
– Regulation 14.8 vraagt om een beschikbaarheidsstudie,



Opgave

Beschikbaar maken van voldoende brandstoffen,
mondiaal, maar ook in NL.

Ook:

- Investerings en kosten naleving norm
- Handhaving mondiale norm door landen
- Waarborgen kwaliteit brandstoffen
- Juist gebruik brandstoffen aan boord van schip



Vorbereiding besluitvorming MEP70

- Nederland lid stuurgroep brandstofbeschikbaarheid
- Bunkersectoroverleg over IMO besluitvorming
- Coördinatie delen ervaringen SECA in IMO
- Nationaal vooroverleg MEPC 70
- EU overleg en coördinatie over in te nemen positie



Uitkomsten MEPC 70 “Global Sulphur Cap”

1. Onderzoek: “Assesment on Fuel Oil Availability” goedgekeurd
2. Conclusie genoeg brandstoffen in 2020 voldoende ondersteund
3. Besluit genomen inwerkingtreding mondiale zwavellimiet per 1-1-2020
4. In PPR 4 bespreken opgave implementeren mondiale zwavelnorm



Hoe gaat de brandstofmix eruit zien?

- HFO > 0,5% blijft beschikbaar
- Nieuwe 0,5% blends (LSFO)
- LNG en Scrubbers aantrekkelijker





EU harmonisatie zwavelregelgeving

- EMSA richtlijnen voor geharmoniseerde zwavelinspecties.
- EU uitvoeringsbepaling harmonisering handhaving:
 - Verplichting vanaf begin 2015 van kracht
 - Aantallen te inspecteren schepen vanaf 2016
 - Verplichtingen over documentcontroles en monsterneming
 - Controle van brandstofleveranciers
 - Vrijwillig risicogestuurde handhaving (Thetis EU, sniffers, monsterneming, etcetera)

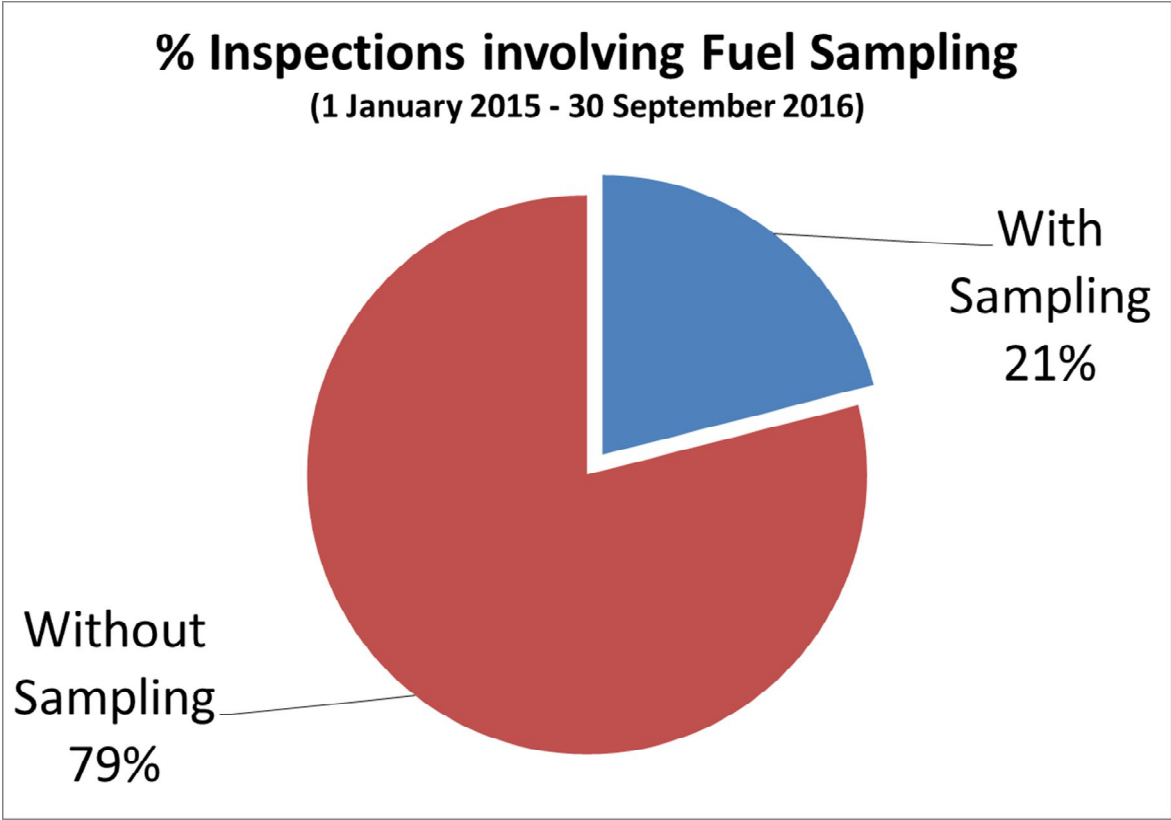


EU implementatie zwavelregelgeving

- Tot 30 september 2016 meer dan 14.000 zwavelinspecties geregistreerd.
- Hoge naleving van 95% geconstateerd.
- Langs SECA's 50-80% reductie van zwavel in de lucht geconstateerd.

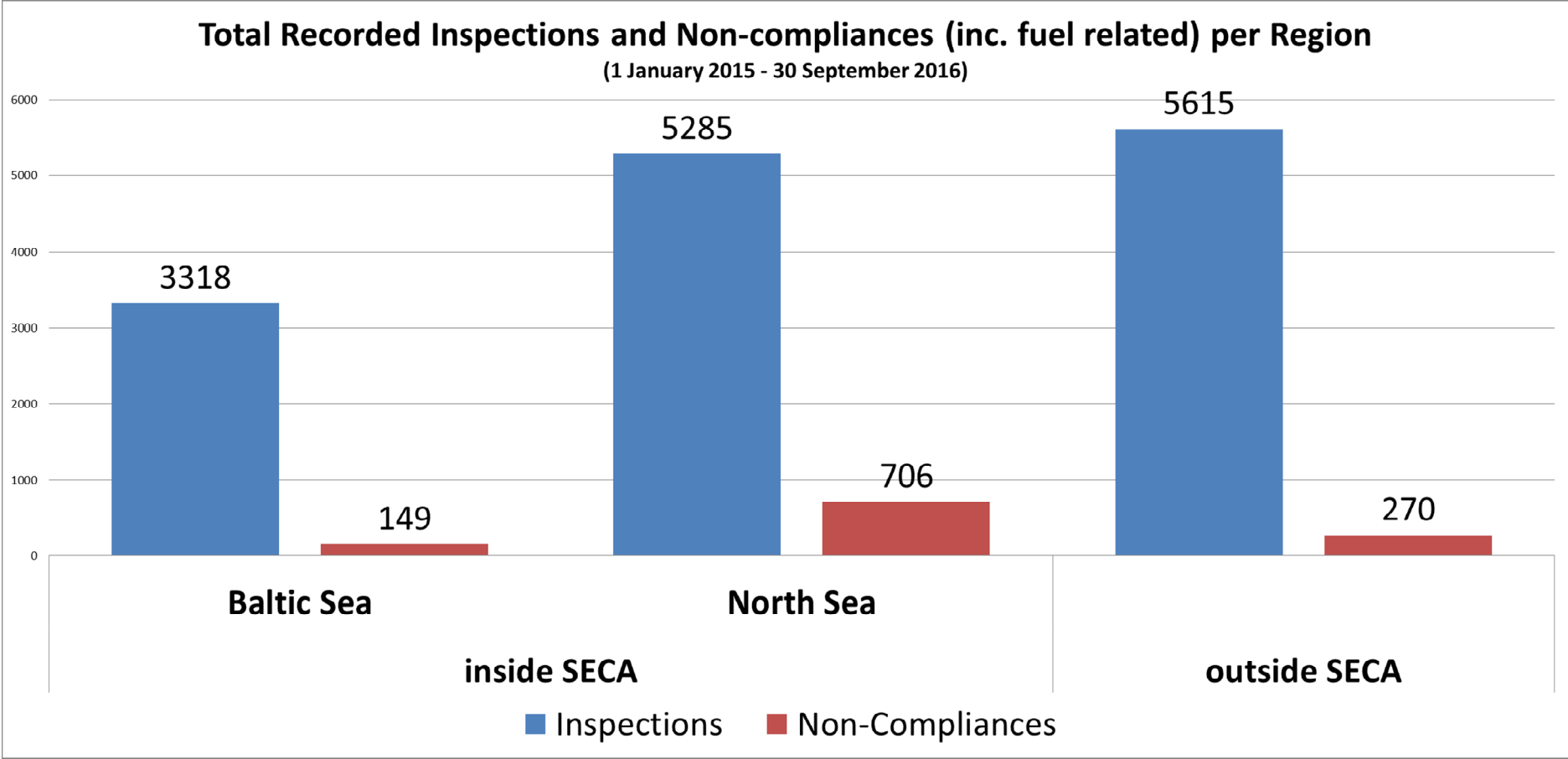


Europese cijfers naleving

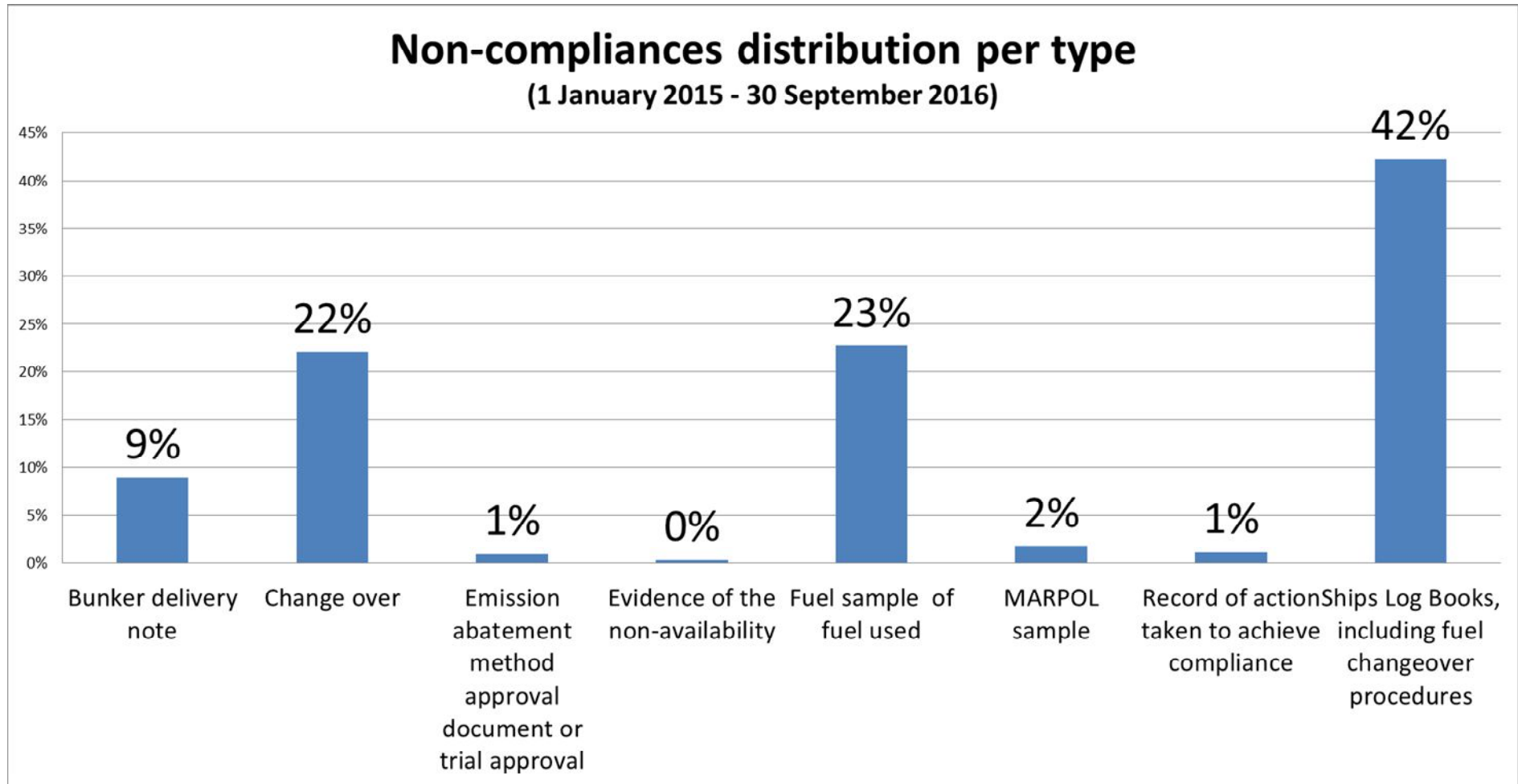




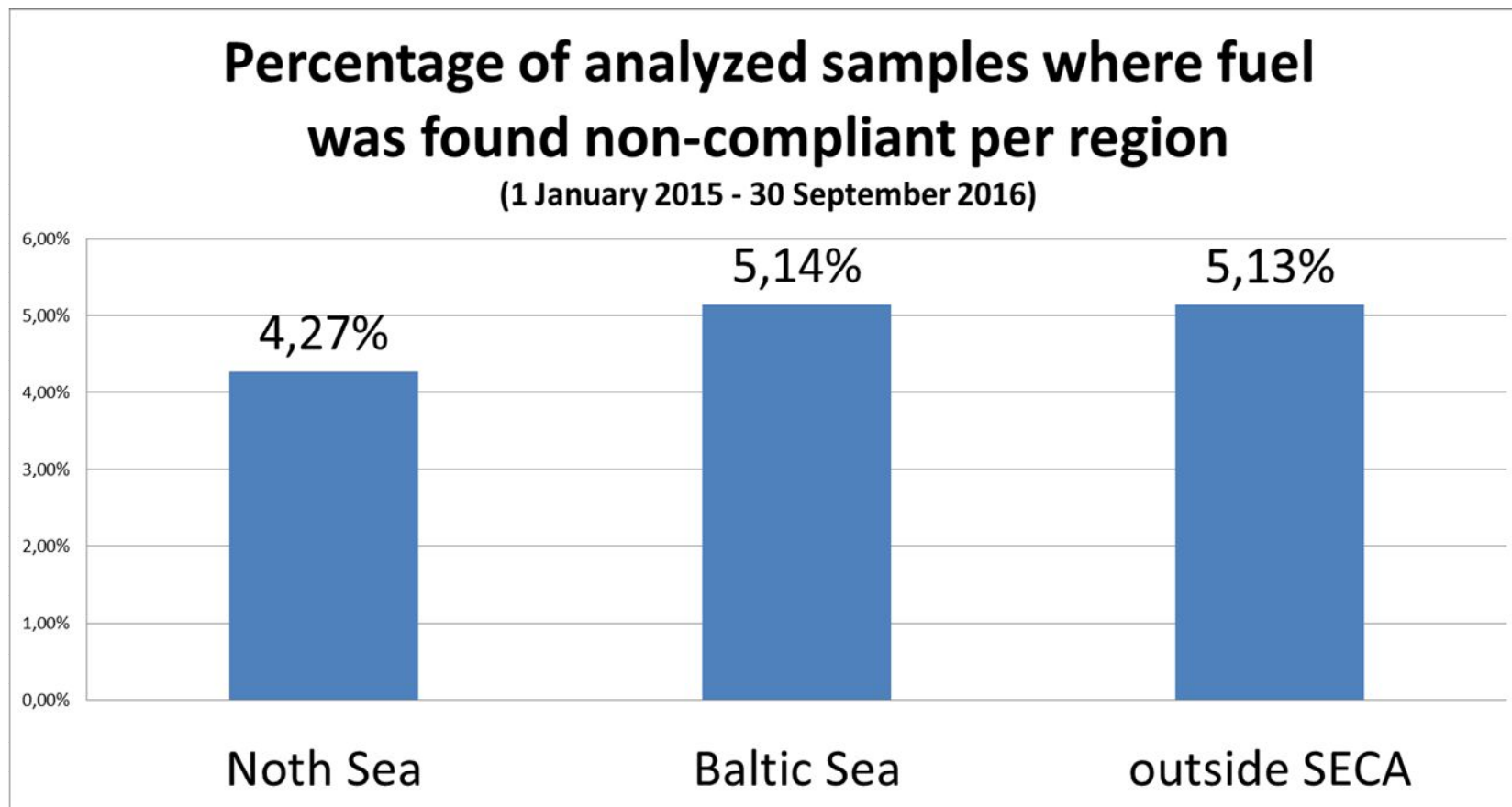
Europese cijfers naleving



Distribution of Non-compliances



Non-compliant fuel used on board



- Non compliant betekent $> 0,10\%$, niet percentage hoogzwavelige brandstof!



Handhaving in Nederland

- Efficient en risicogestuurd toezicht
- **Richten op overtreders!**
- Overlast goede nalevers minimaliseren
- Voorbereiding op mondiale zwavelnorm

O.a. door opgeleide zwavelinspecteurs, snuffelpalen langs vaarroutes, inspecties met vliegtuigen op open zee, moderne apparatuur monsterneming, gebruik Thetis-S, "brandstofcalculatietool", enz.



Mondiale opgave handhaving

- Delen ervaringen risicogestuurde handhaving
- Mondiale harmonisatie inspectieverplichtingen
- Alternatieve methoden aantonen compliance?



Planning

9 december	(Informele) EU coördinatie
19 december	Nationaal vooroverleg
Week 16 januari	PPR4
Juli	IMO MEPC 71

EEDI en Minimum Power Requirements

Sander den Heijer
Sector Manager

Platform Schone Scheepvaart
7 december 2016



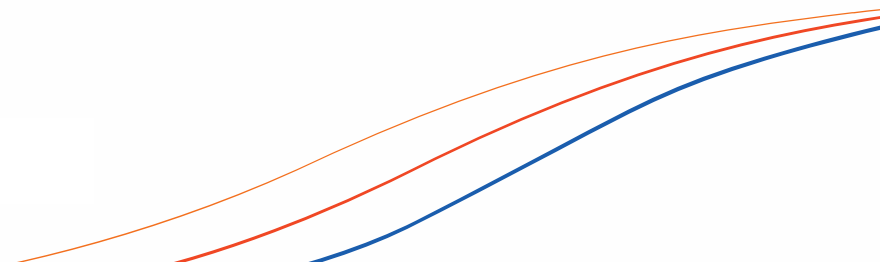
TRADE



INNOVATION

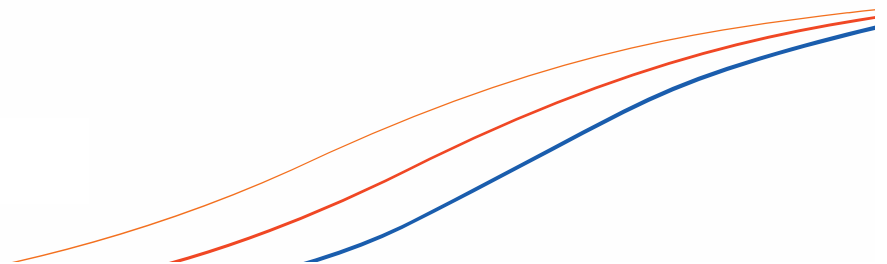


HUMAN CAPITAL



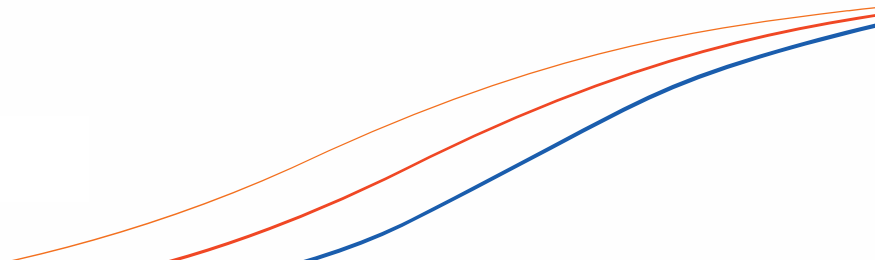
EEDI en MPR

- EEDI - Energy Efficiency Design Index
- MPR - Minimum Power Requirements

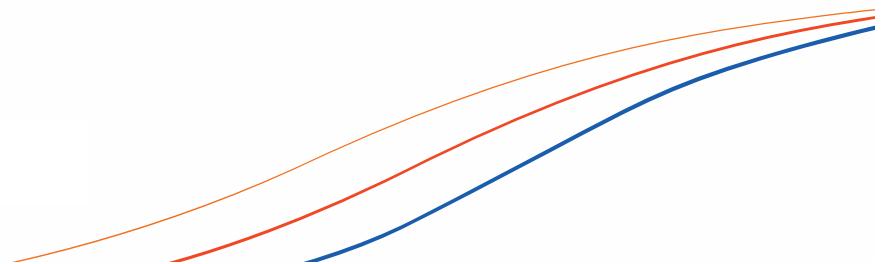


EEDI - Energy Efficiency Design Index

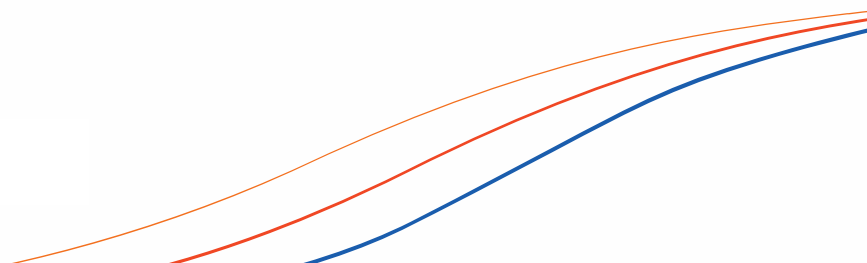
- Waarom eigenlijk?
- Huidige regelgeving
- Toekomstige regelgeving
- Ontwikkelingen in regelgeving



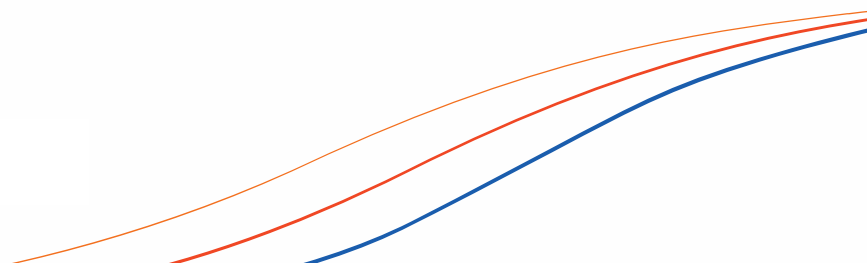
EEDI - Waarom eigenlijk?



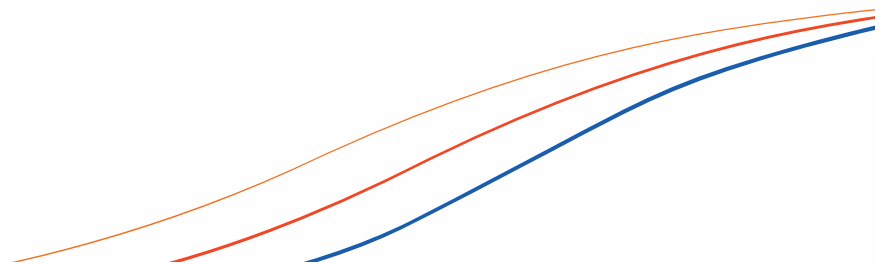
EEDI - Waarom eigenlijk?



EEDI - Waarom eigenlijk?

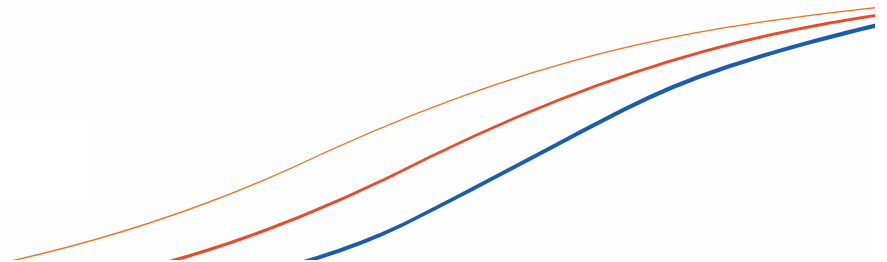


EEDI - Huidige regelgeving



EEDI - Huidige regelgeving

- MARPOL Annex VI reg. 20 en 21
- Diverse resoluties met guidelines en guidance



EEDI - Huidige regelgeving

$$\frac{\left(\prod_{j=1}^M f_j \right) \left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + P_{AE} \cdot C_{FAE} \cdot SFC_{AE} + \left(\left(\prod_{j=1}^M f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEeff(i)} \right) C_{FAE} \cdot SFC_{AE} \right) - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME} \right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w}$$



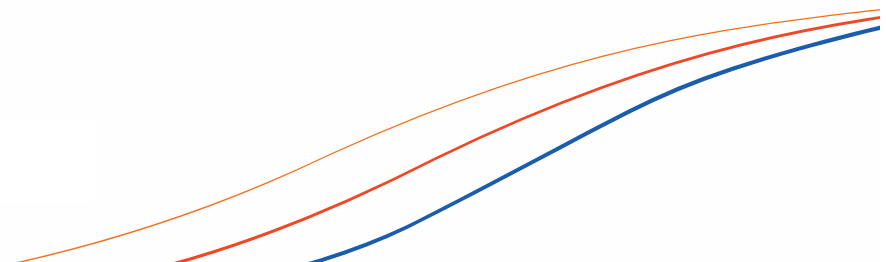
TRADE



INNOVATION

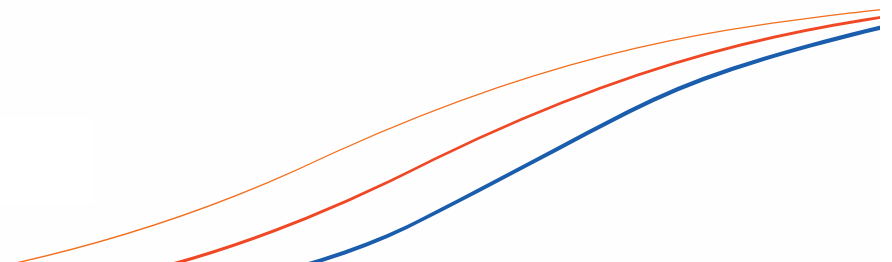


HUMAN CAPITAL



EEDI - Huidige regelgeving

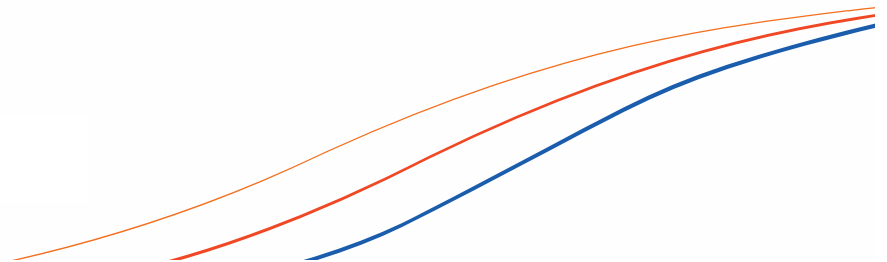
$$EEDI = \frac{CO_2 \text{ emission}}{\text{transport work}}$$



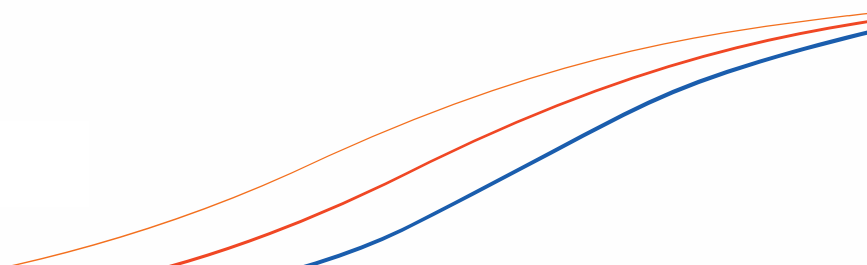
EEDI - Huidige regelgeving



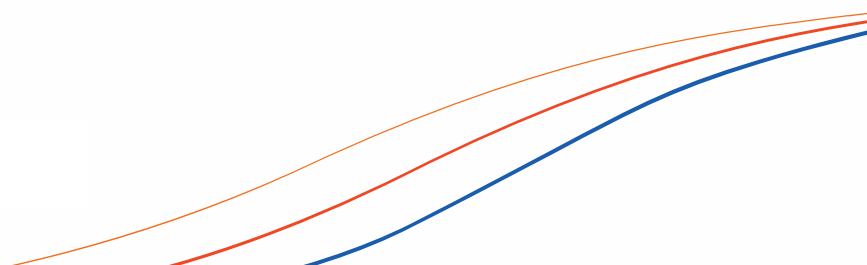
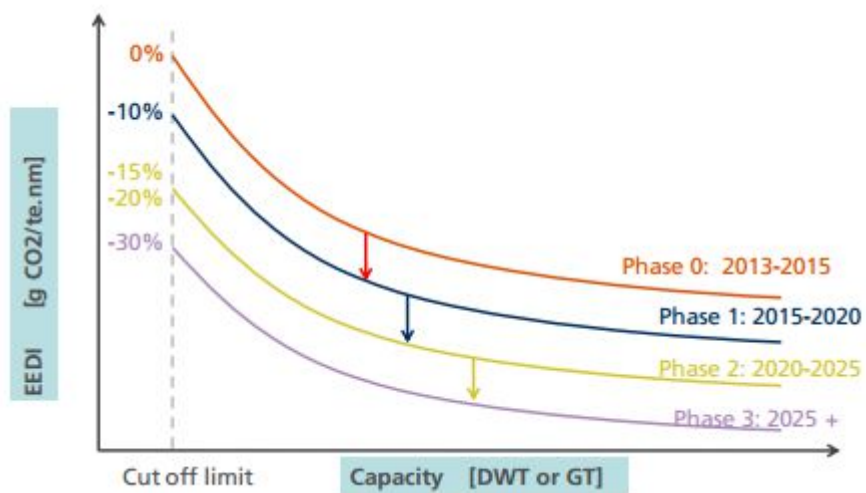
≠



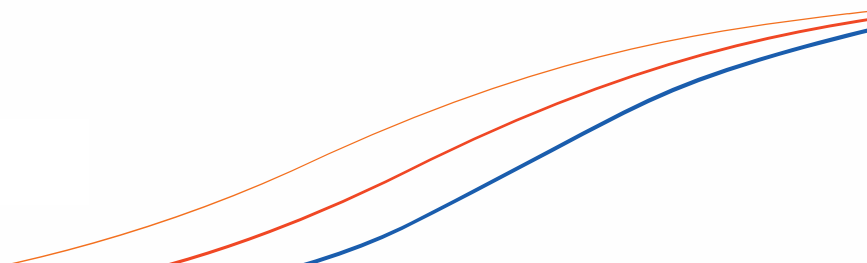
Ship Type	Size	Ph
Bulk carrier	20,000 DWT and above	[Redacted]
	10,000 – 20,000 DWT	
Gas carrier	10,000 DWT and above	
	2,000 – 10,000 DWT	
Tanker	20,000 DWT and above	
	4,000 – 20,000 DWT	
Containership	15,000 DWT and above	
	10,000 – 15,000 DWT	
General Cargo ships	15,000 DWT and above	
	3,000 – 15,000 DWT	
Refrigerated cargo carrier	5,000 DWT and above	
	3,000 – 5,000 DWT	
Combination carrier	20,000 DWT and above	
	4,000 – 20,000 DWT	



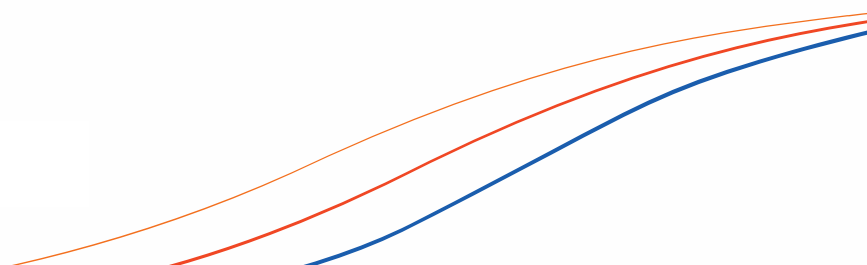
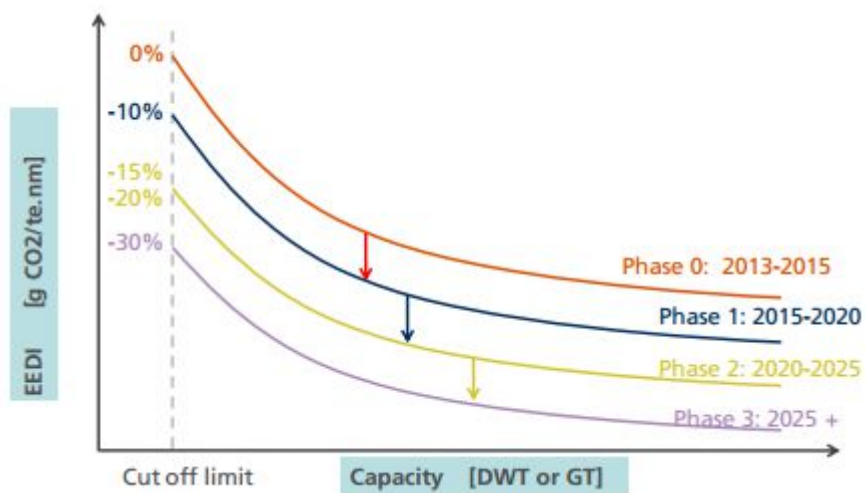
EEDI - Huidige regelgeving



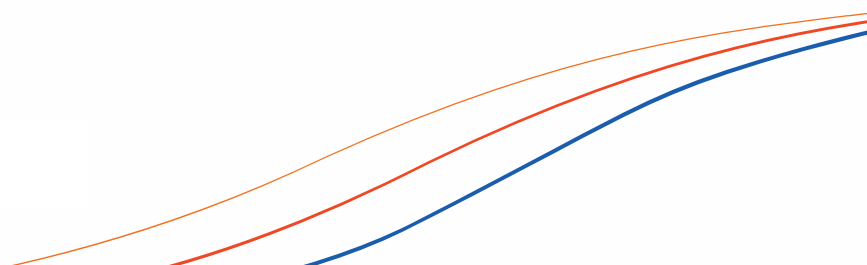
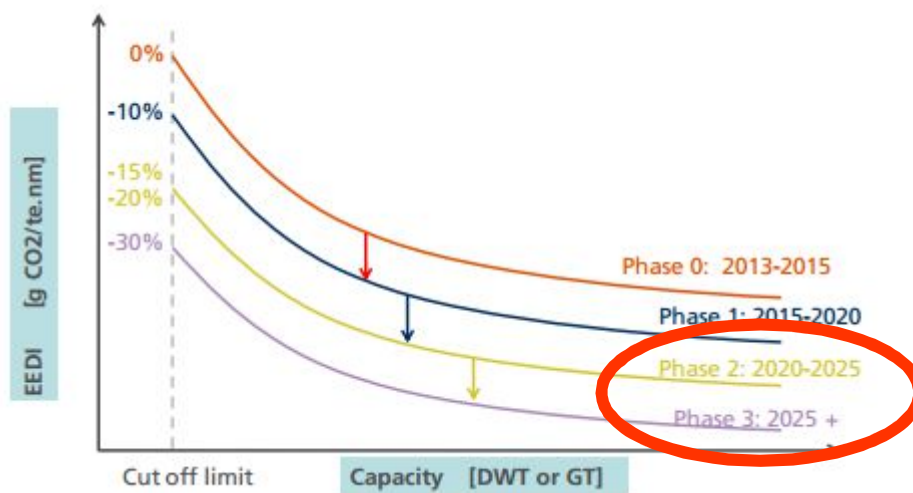
EEDI - Toekomstige regelgeving



EEDI - Toekomstige regelgeving

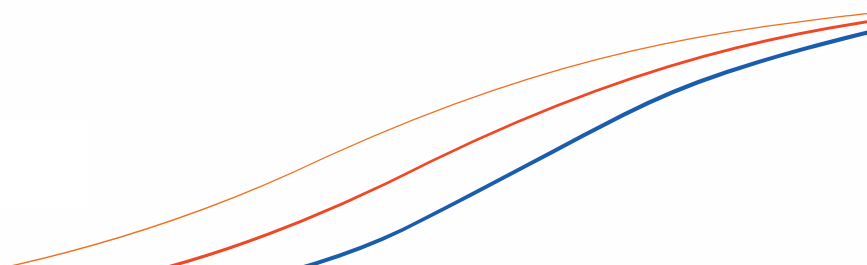


EEDI - Toekomstige regelgeving





LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 –2,000 DWT	n/a	0-5***	0-20*	0-30*
Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 –1,000 DWT	n/a	0-5***	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5***	0-20*	0-30*
<p>* Reduction factor to be linearly interpolated between the two values dependent upon vessel size. The lower value of the reduction factor is to be applied to the smaller ship size.</p> <p>** Phase 1 commences for those ships on 1 September 2015.</p> <p>*** Reduction factor applies to those ships delivered on or after 1 September 2019, as defined in paragraph 43 of regulation 2.</p> <p>Note: n/a means that no required EEDI applies.</p>					





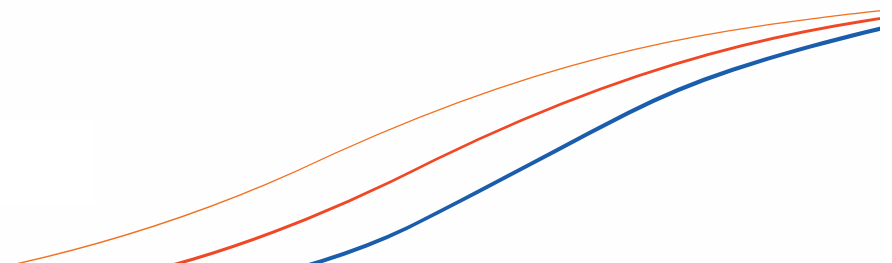
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 – 2,000 DWT	n/a	0-5***	0-20*	0-30*
Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 – 1,000 DWT	n/a	0-5***	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5***	0-20*	0-30*

* Reduction factor to be linearly interpolated between the two values dependent upon vessel size. The lower value of the reduction factor is to be applied to the smaller ship size.

** Phase 1 commences for those ships on 1 September 2015.

*** Reduction factor applies to those ships delivered on or after 1 September 2019, as defined in paragraph 43 of [regulation 2](#).

Note: n/a means that no required EEDI applies.





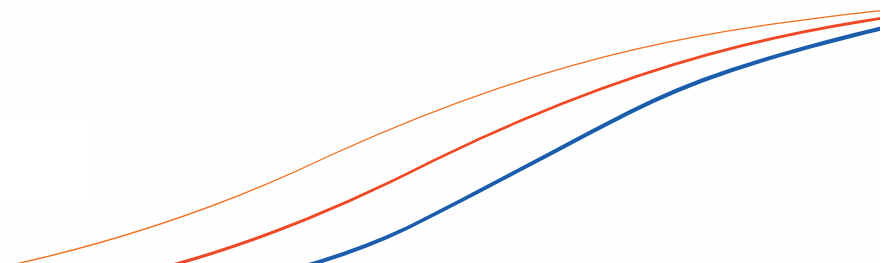
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 – 2,000 DWT	n/a	0-5***	0-20*	0-30*
Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 – 1,000 DWT	n/a	0-5***	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5***	0-20*	0-30*

* Reduction factor to be linearly interpolated between the two values dependent upon vessel size. The lower value of the reduction factor is to be applied to the smaller ship size.

** Phase 1 commences for those ships on 1 September 2015.

*** Reduction factor applies to those ships delivered on or after 1 September 2019 as defined in paragraph 43 of [regulation 2](#).

Note: n/a means that no required EEDI applies.





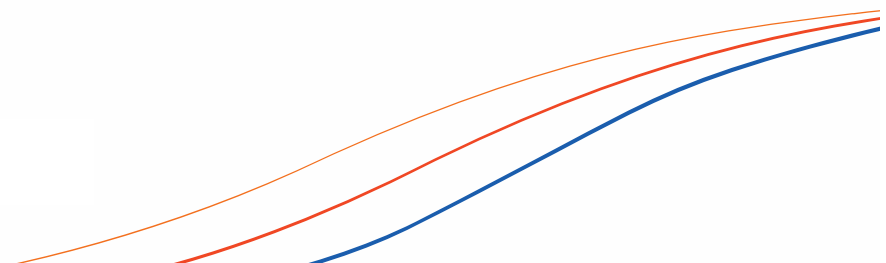
LNG carrier***	10,000 DWT and above	n/a	10**	20	30
Ro-ro cargo ship (vehicle carrier)***	10,000 DWT and above	n/a	5**	15	30
Ro-ro cargo ship***	2,000 DWT and above	n/a	5**	20	30
	1,000 – 2,000 DWT	n/a	0-5***	0-20*	0-30*
Ro-ro passenger ship***	1000 DWT and above	n/a	5**	20	30
	250 – 1,000 DWT	n/a	0-5***	0-20*	0-30*
Cruise passenger ship*** having non-conventional propulsion	85,000 GT and above	n/a	5**	20	30
	25,000 – 85,000 GT	n/a	0-5***	0-20*	0-30*

* Reduction factor to be linearly interpolated between the two values dependent upon vessel size. The lower value of the reduction factor is to be applied to the smaller ship size.

** Phase 1 commences for those ships on 1 September 2015.

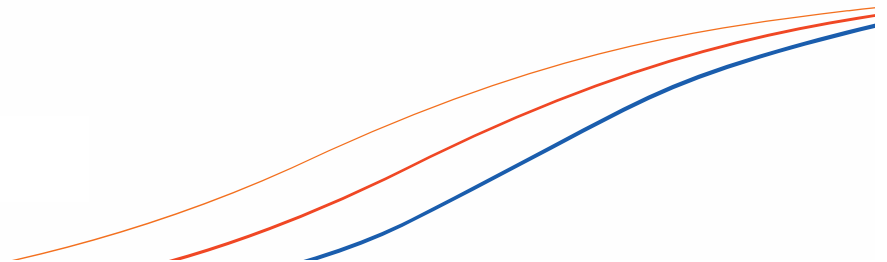
*** Reduction factor applies to those ships delivered on or after 1 September 2019 as defined in paragraph 43 of [regulation 2](#).

Note: n/a means that no required EEDI applies.



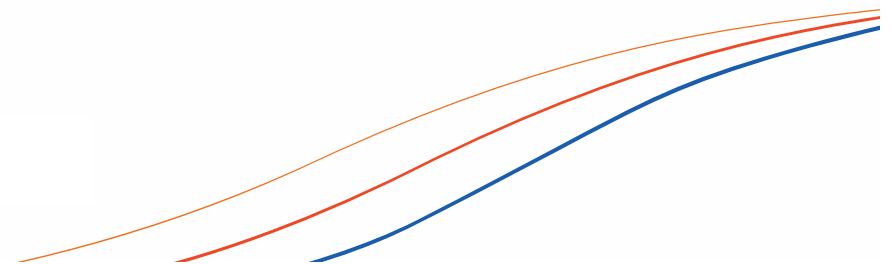
EEDI - Ontwikkelingen

- Mogelijke herziening eisen phase 3 (2025+):
 - Reductiefactoren
 - Eerdere implementatie
- Mogelijke invoering phase 4
- Veel discussie over haalbaarheid



MPR - Minimum Power Requirements

- Waarom eigenlijk?
- Huidige regelgeving
- Toekomstige regelgeving
- Ontwikkelingen in regelgeving



MPR - Waarom eigenlijk?

$$\frac{\left(\prod_{j=1}^M f_j \right) \left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + P_{AE} \cdot C_{FAE} \cdot SFC_{AE} + \left(\left(\prod_{j=1}^M f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEff(i)} \right) C_{FAE} \cdot SFC_{AE} \right) - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME} \right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w}$$



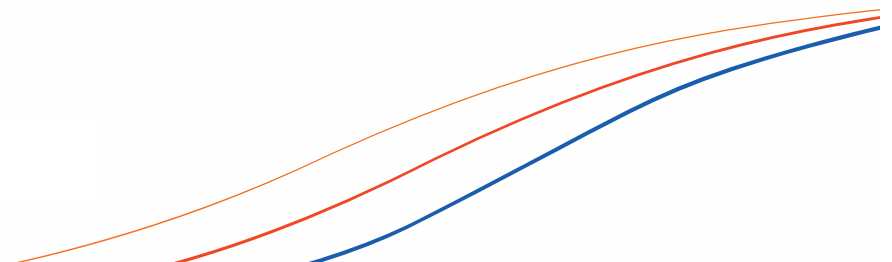
TRADE



INNOVATION



HUMAN CAPITAL



MPR - Waarom eigenlijk?

$$\left(\prod_{j=1}^M f_j \left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + P_{AE} \cdot C_{FAE} \cdot SFC_{AE} \right) + \dots$$



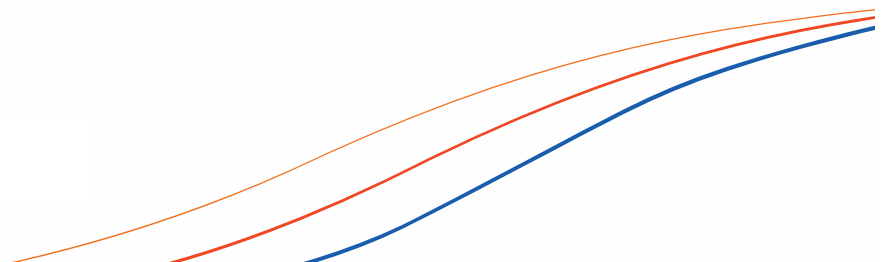
TRADE



INNOVATION



HUMAN CAPITAL





**NETHERLANDS
MARITIME
TECHNOLOGY**

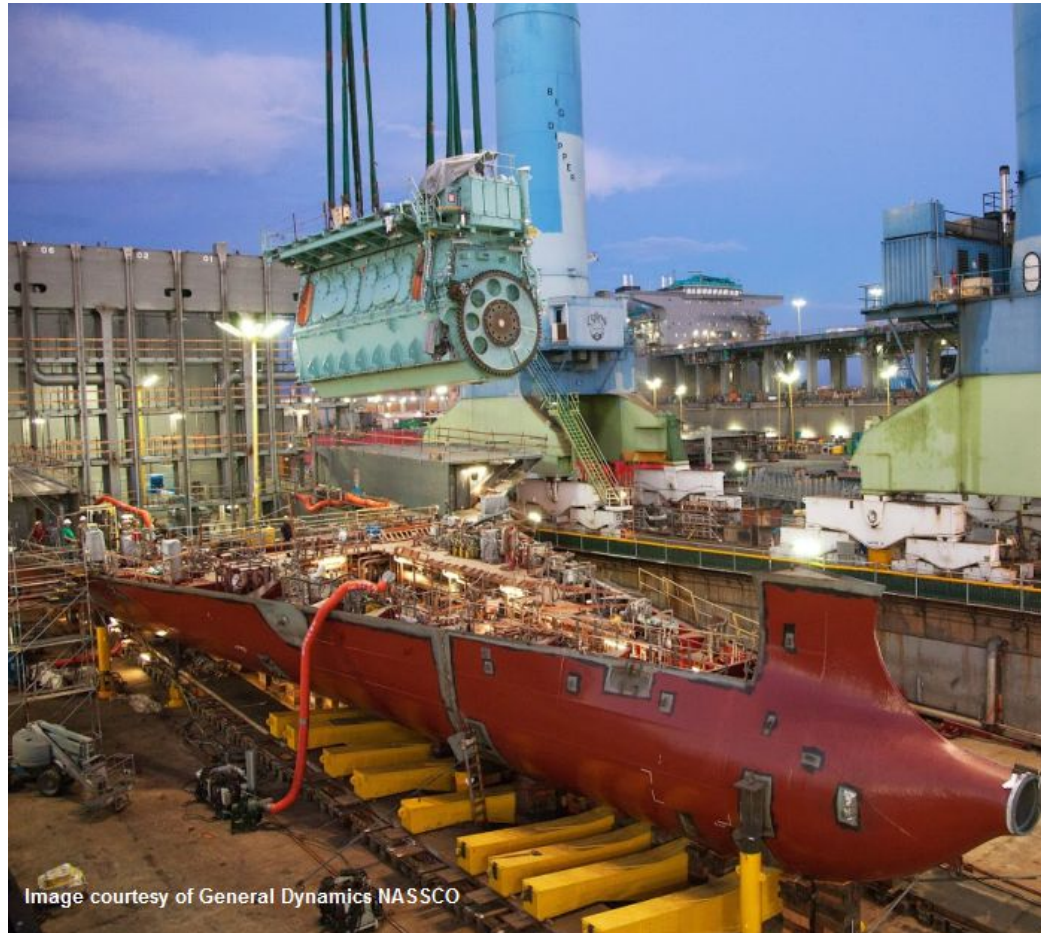


Image courtesy of General Dynamics NASSCO



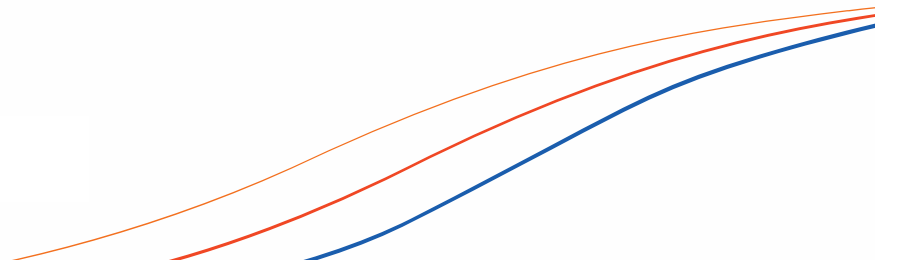
TRADE

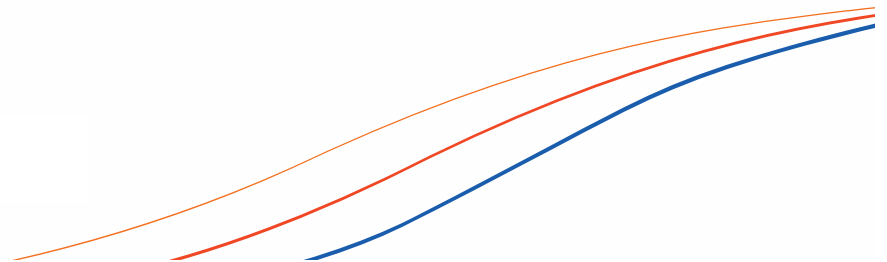


INNOVATION



HUMAN CAPITAL







NETHERLANDS
MARITIME
TECHNOLOGY



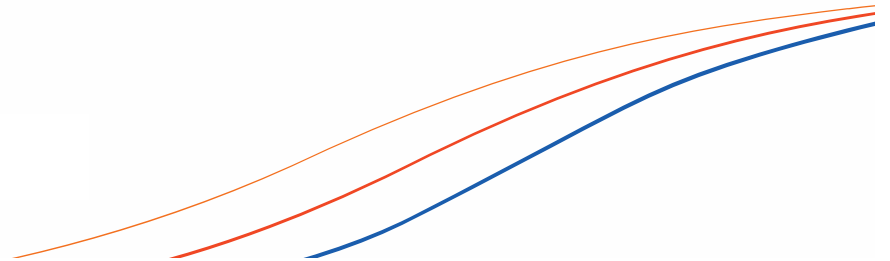
TRADE

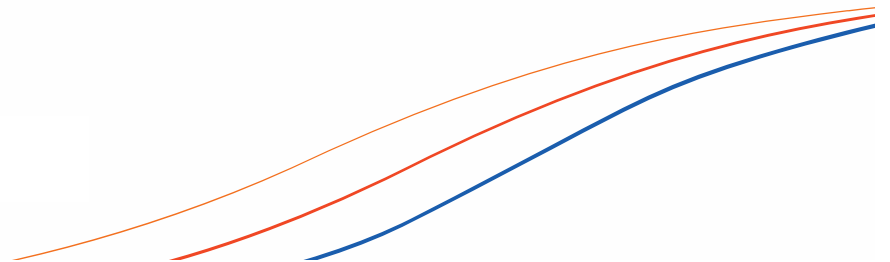


INNOVATION



HUMAN CAPITAL





MPR - Huidige regelgeving

MARPOL Annex vi regulation 21:

- 4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.
- 5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.
- 6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.



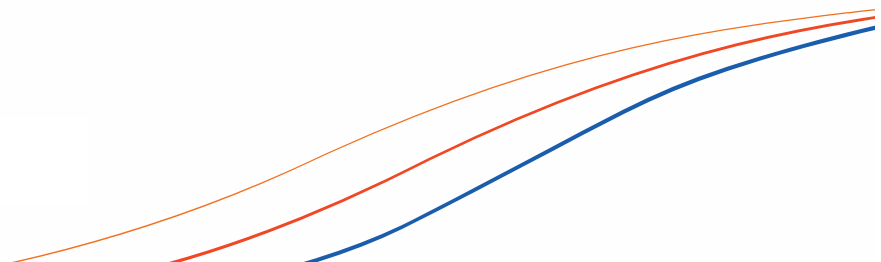
TRADE



INNOVATION



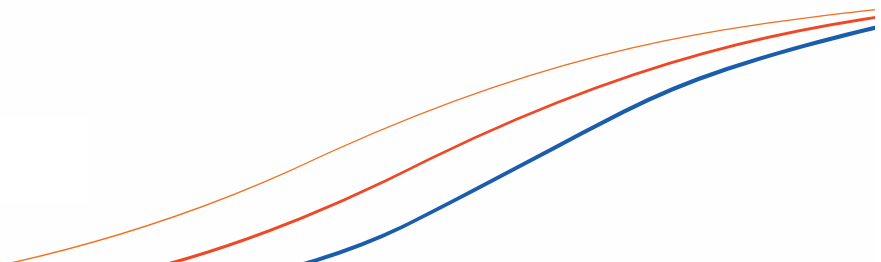
HUMAN CAPITAL



MPR - Huidige regelgeving

MARPOL Annex vi regulation 21:

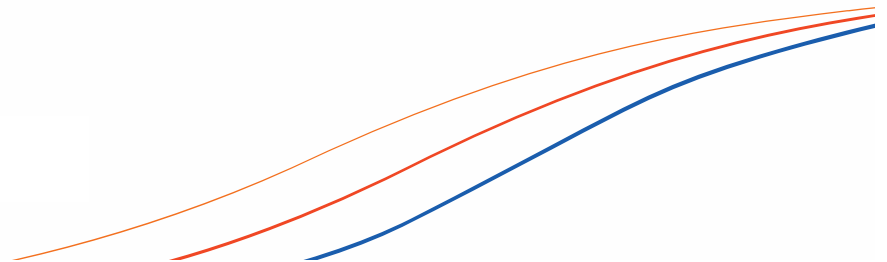
- 4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.
- 5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.
- 6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.



MPR - Huidige regelgeving

MARPOL Annex vi regulation 21:

- 4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.
- 5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.
- 6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.



MPR - Huidige regelgeving

MARPOL Annex vi regulation 21:

4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.

5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.

6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.



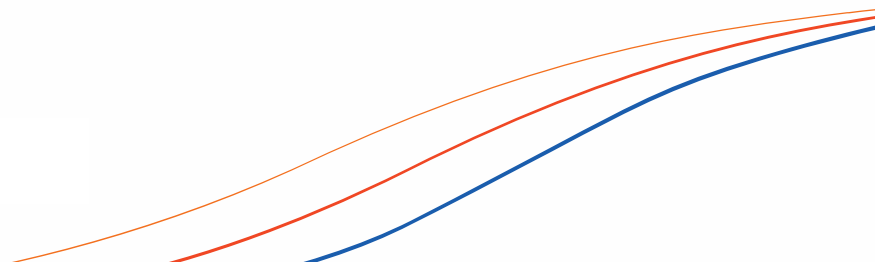
TRADE



INNOVATION



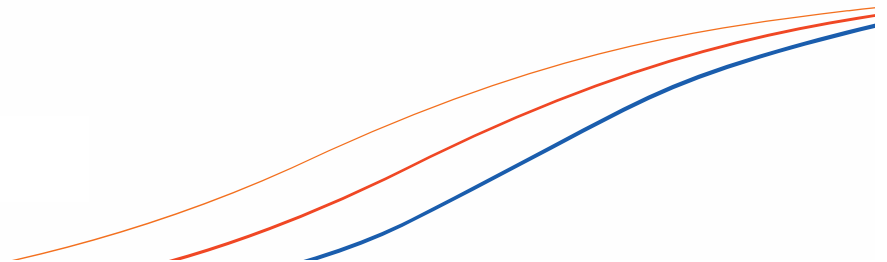
HUMAN CAPITAL



MPR - Huidige regelgeving

MARPOL Annex vi regulation 21:

- 4 If the design of a ship allows it to fall into more than one of the ship type definitions specified in table 2, the required EEDI for the ship shall be the most stringent (the lowest) required EEDI.
- 5 For each ship to which this regulation applies, the installed propulsion power shall not be less than the propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions as defined in the guidelines to be developed by the Organization.
- 6 At the beginning of Phase 1 and at the midpoint of Phase 2, the Organization shall review the status of technological developments and, if proven necessary, amend the time periods, the EEDI reference line parameters for relevant ship types and reduction rates set out in this regulation.



Resolutions from the sixty-fifth session of the Marine Environment Protection Committee in May 2013

**RESOLUTION MEPC.232(65)
Adopted on 17 May 2013**

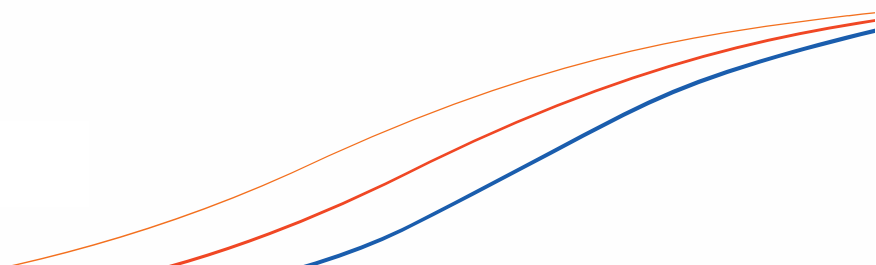
2013 INTERIM GUIDELINES FOR DETERMINING MINIMUM PROPULSION POWER TO MAINTAIN THE MANOEUVRABILITY OF SHIPS IN ADVERSE CONDITIONS

See IMO-Vega Note for amendments. These guidelines are also issued in consolidated text in MEPC.1/Circ.850 of 2014-11-17

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

RECALLING ALSO that, at its sixty-second session, the Committee adopted, by 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)



2 Minimum power lines

2.1 The minimum power line values of total installed MCR, in kW, for different types of ships should be calculated as follows:

$$\text{Minimum Power Line Value} = a \times (DWT) + b$$

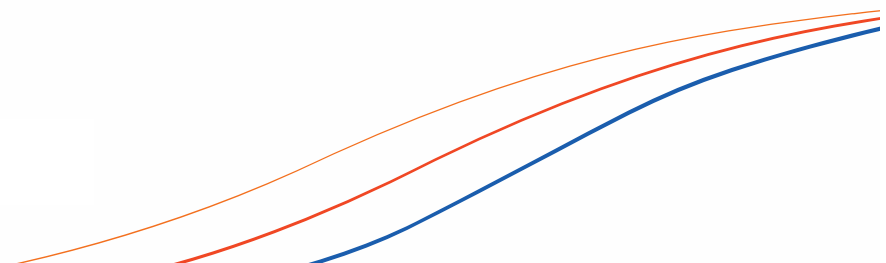
Where:

DWT is the deadweight of the ship in metric tons; and

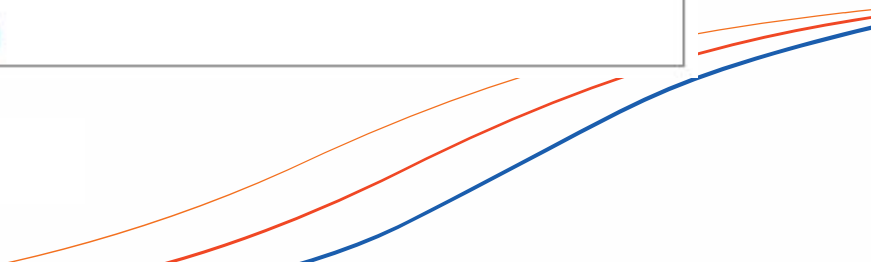
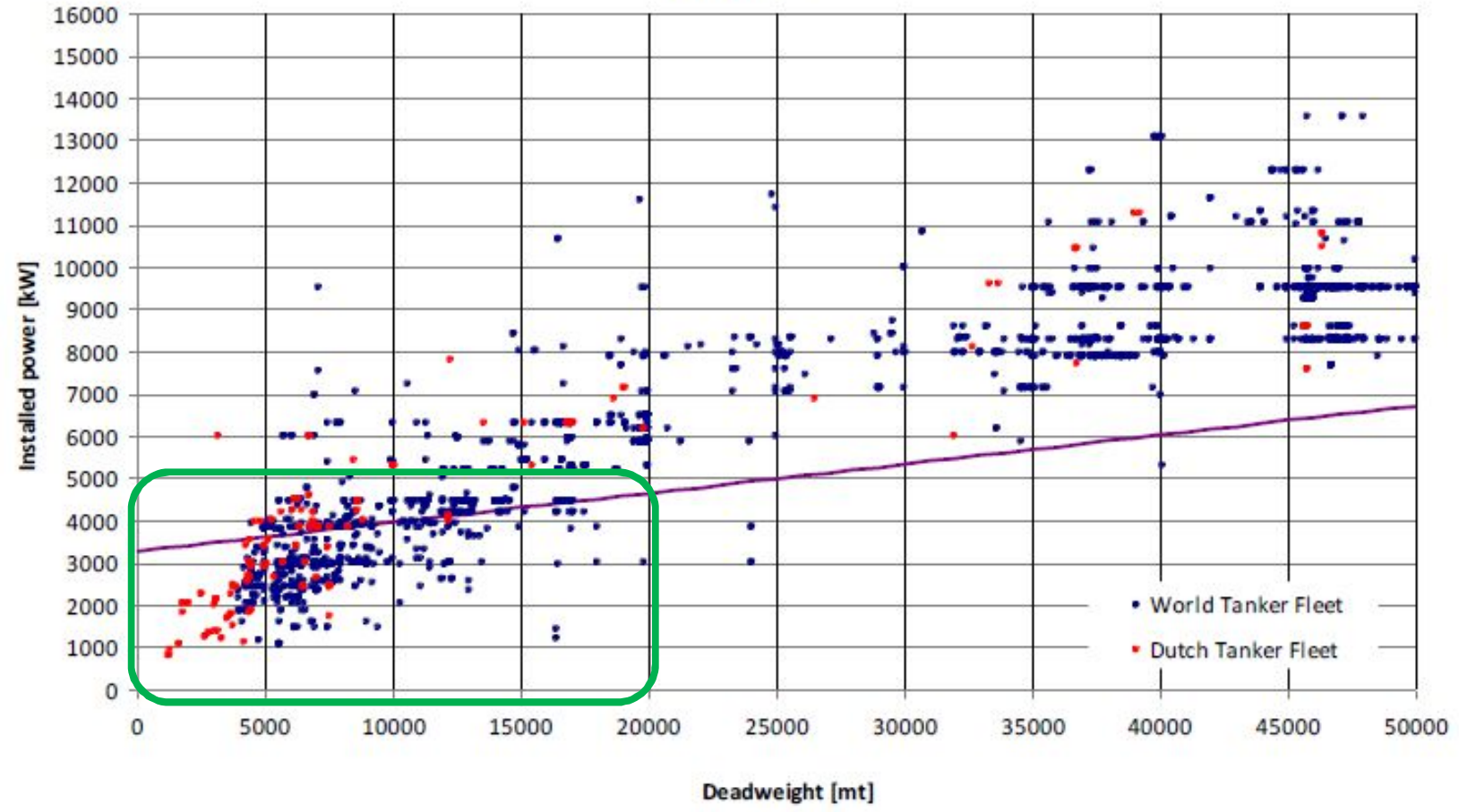
a and *b* are the parameters given in table 1 for tankers, bulk carriers and combination carriers.

Table 1: Parameters a and b for determination of the minimum power line values for the different ship types

Ship type	a	b
Bulk carrier which DWT is less than 145,000	0.0763	3374.3
Bulk carrier which DWT is 145,000 and over	0.0490	7329.0
Tanker	0.0652	5960.2
Combination Carrier	see tanker above	



Installed power vs. deadweight values of 4370 Tankers of the World Tanker Fleet; 152 Tankers of the Dutch Fleet

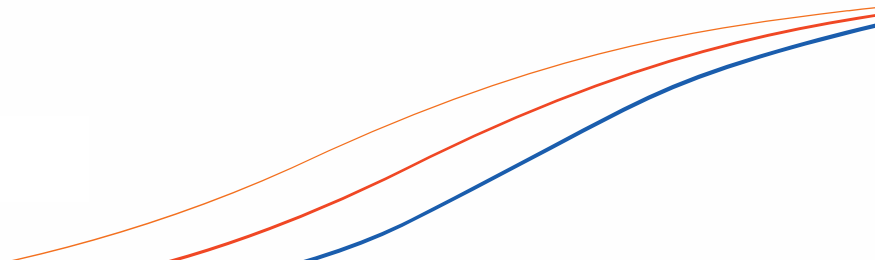




CONOSHIP

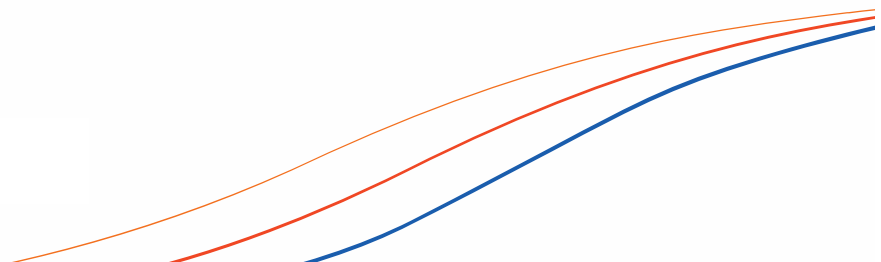


I:\MEPC\66\INF-25.doc



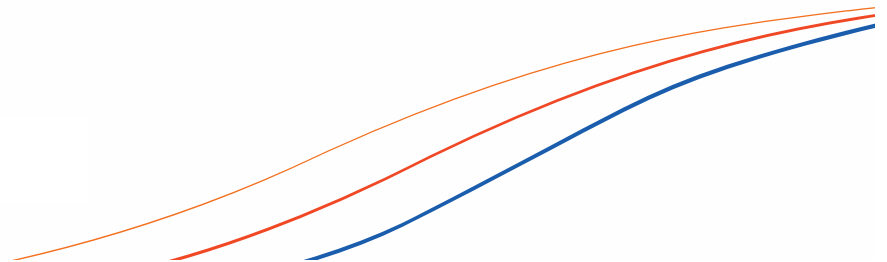
MPR - Huidige regelgeving

* These Interim guidelines are applied to ships required to comply with regulations on Energy Efficiency for Ships according to regulation 21 of MARPOL Annex VI during Phase 0 and Phase 1 (i.e. for those ship types as in table 1 of appendix with the size of equal or more than 20,000 DWT)



MPR - Toekomstige regelgeving

?



MPR - Ontwikkelingen



CONOSHIP
INTERNATIONAL

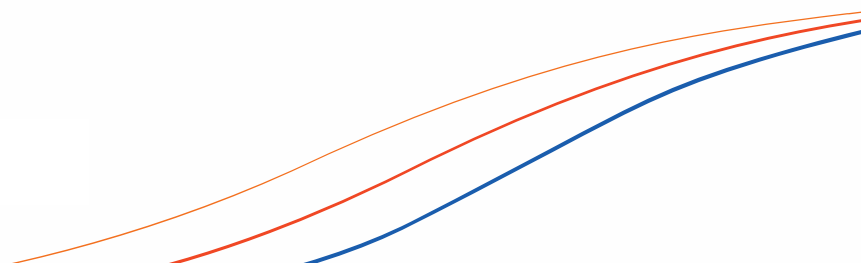
MARIN



MacRAW

MINIMUM POWER REQUIREMENTS FOR LOW-POWERED

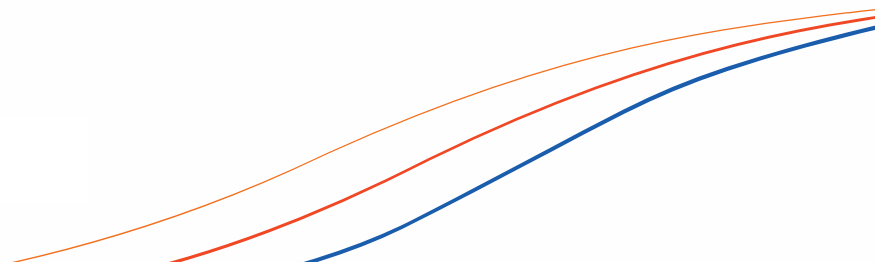
FULL-BLOCK SHIPS



MPR - Ontwikkelingen

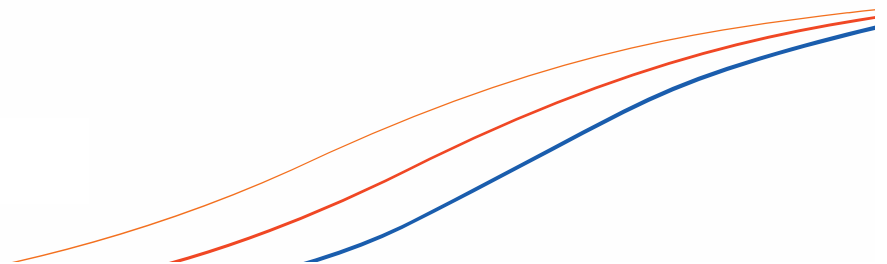
Veel discussie:

- Adverse conditions
- Manouvrability
- Minimum '*POWER*'?



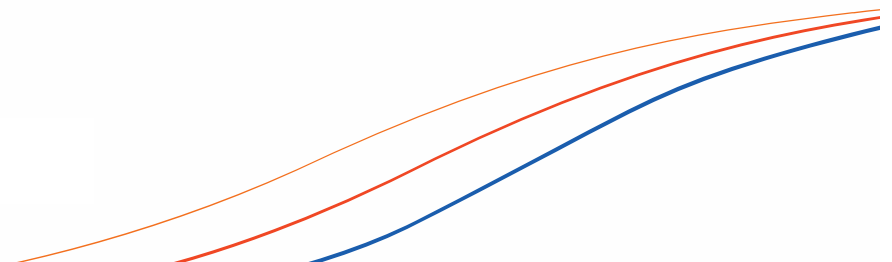
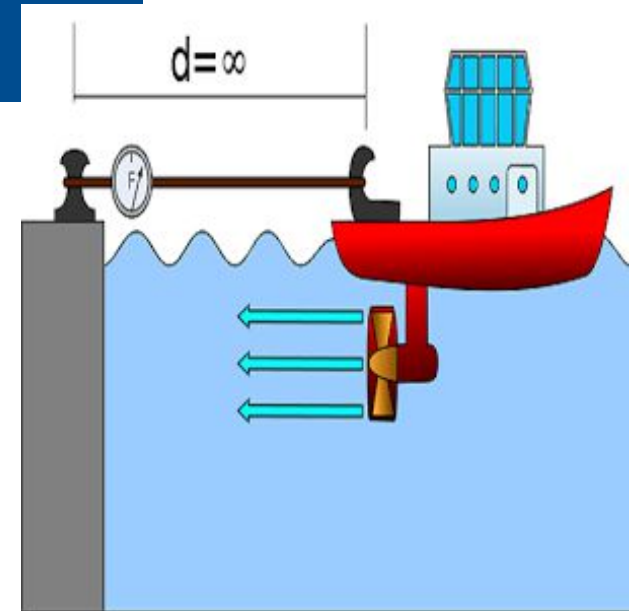
MPR - Ontwikkelingen

- Shopera & Jasnaoe: verfijnen interim guidelines
- MacRAW: leeg vel



MPR - Ontwikkelingen

- MacRAW: vermogen is geen juist criterium
- MacRAW: Bollard pull



MPR - Ontwikkelingen

- IMO MEPC71 (Q2 2017): gezamenlijk voorstel
- Veel discussie verwacht
- Politiek gevoelig
- Ook langs MSC
- Zeer waarschijnlijk: geen uitbreiding categorieën / ondergrens



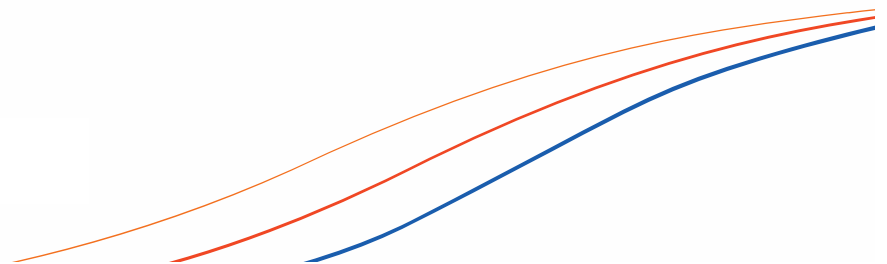
TRADE



INNOVATION

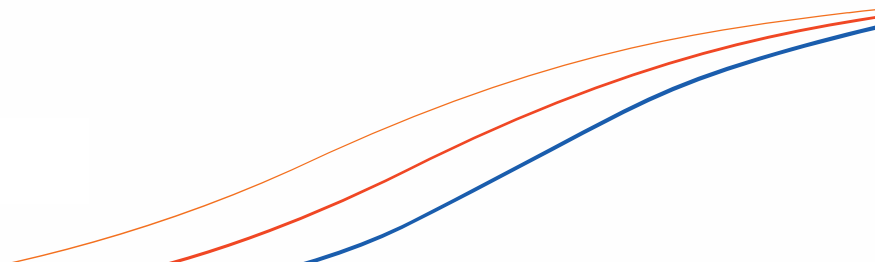


HUMAN CAPITAL



EEDI en Minimum Power Requirements

Dank voor uw aandacht





Reduction of GHG emissions from international shipping

**Platform Schone Scheepvaart,
Zwolle, 7 December**

Henk-Erik Sierink, EC policy officer - DG Climate Action

Content

I Introduction: Green House Gas emissions growth

II GHG reduction approach EU

A) EU MRV implementation

B) EU MRV alignment with global system

III GHG reduction approach IMO

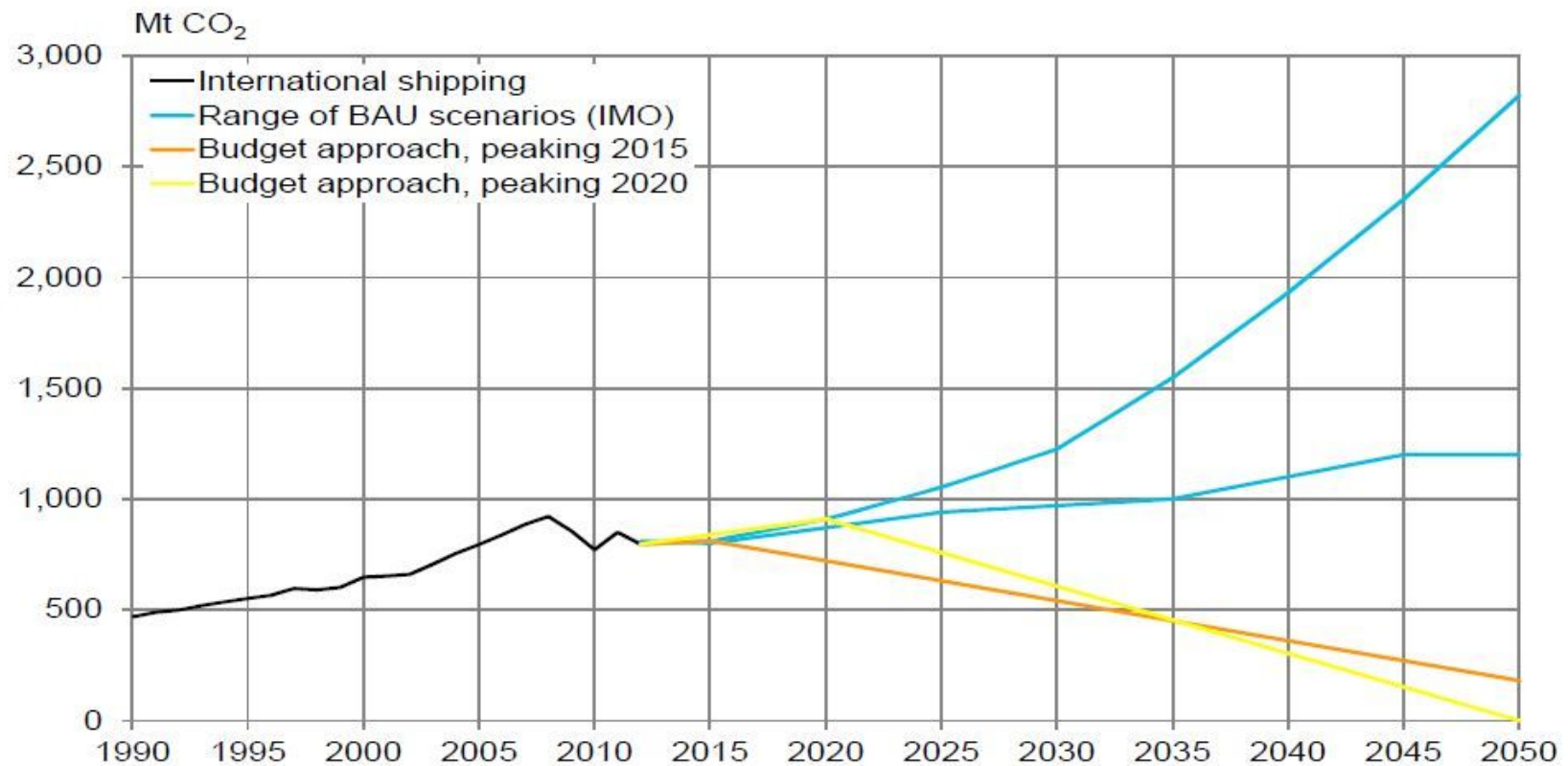
A) EEDI

B) Data Collection (as part of 3-step approach)

C) GHG Reduction Strategy

I – intro (1)

Growth scenario's CO₂ emissions of shipping vs reduction needs

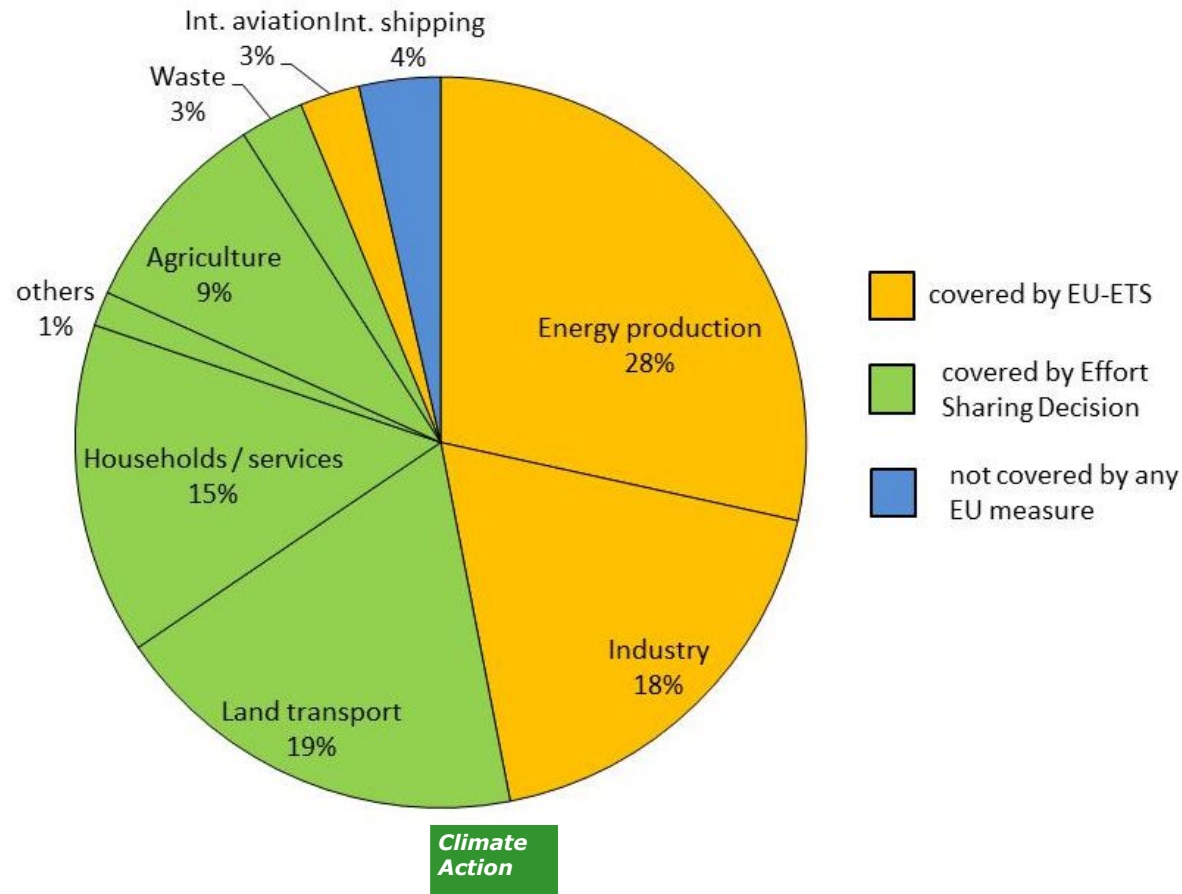


Source: Discussion paper on GHG emission reduction targets for international shipping; Öko-Institut & CE Delft for German Federal Ministry for the Environment, 2015

I – intro (2)

Need to act on maritime CO₂ emissions; other sectors covered by EU measures

GHG emissions by sector in EU (2010) and their coverage by policy instruments





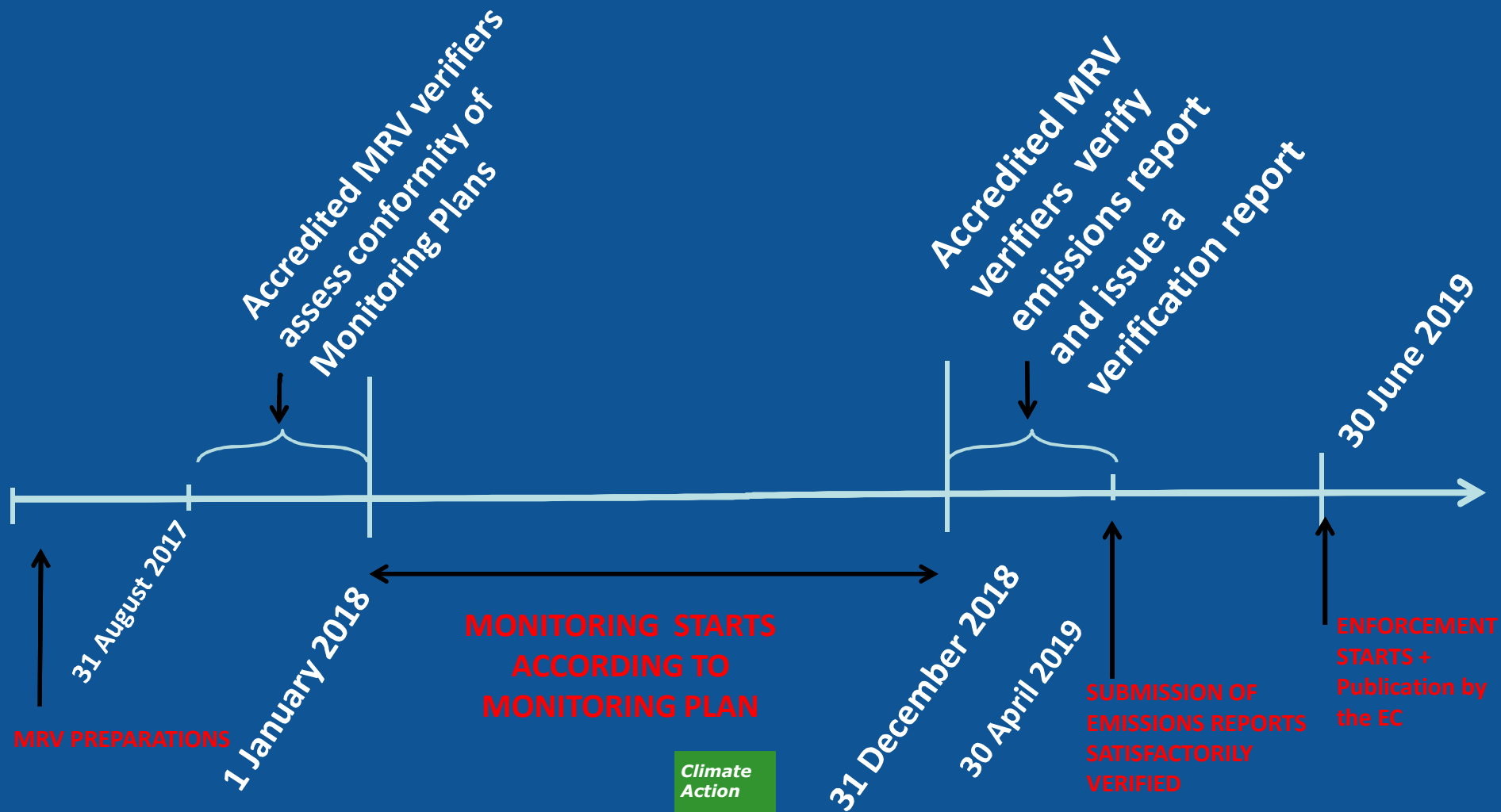
II EU – MRV

Communication June 2013: Gradual approach to reduce GHG emissions from shipping, preferably at global level

- 1. Regulation on monitoring, reporting and verification (MRV) of emissions*
 - 2. Definition of reduction targets*
 - 3. Application of (market-based) measures*
- ... preferably at global level; action urgently needed*



Timeline MRV activities





II a) EU MRV Regulation (EU) 2015/757 **Implementation process has taken off**

- Further develop verification & accreditation processes
- Adapt monitoring methods and rules to international standards and technical and scientific developments
- Technical rules per ship category to calculate "cargo carried"
- Set electronic templates and rules for submission



II a) EU MRV Regulation (EU) 2015/757 **Steps ahead**

- Accreditation of verifiers in 2017
- Monitoring plan: 2nd half 2017
- Start of monitoring from January 2018
- First reporting from January 2019

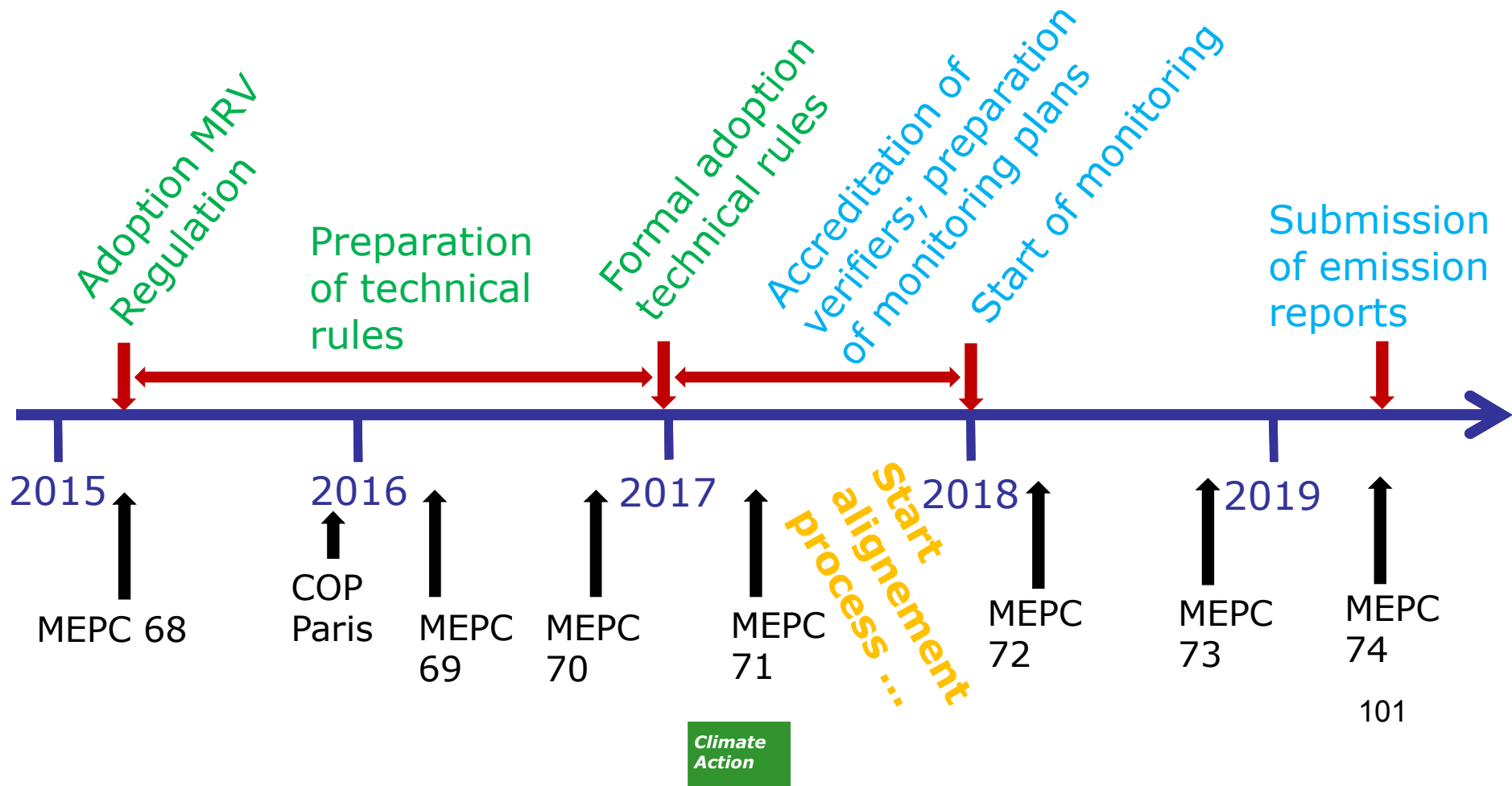


II b) EU MRV – Alignment to global system

- Preparation of Inception Impact Assessment (Roadmap) for review process
- Comparison of all elements ('MRVP') once all IMO Guidelines adopted, followed by Impact Assessment
- Intensive stakeholder consultations envisaged
- Commission to propose amendments to EU-MRV, if appropriate
- Institutional process; EP and Member States to give their opinion ...



Next milestones for implementation of MRV





III - IMO

- a. EEDI (*Energy Efficiency Design Index*)
- b. Global Data Collection System
- c. GHG emissions reduction Strategy



III a) EEDI ***(Energy Efficiency Design Index)***

- For some ship types (container & general cargo!) the 2020 requirements have been fulfilled by ships built before 2015
- IMO MEPC decided in October not to strengthen these requirements
- 2nd half of 2017 the next review will start in view of advancing phase 3 from 2025 to 2022
- *Opportunities for the industry to reduce emissions!*



III b) Global Data Collection System

- Adoption of a mandatory system
 - fuel consumption, hours underway, distance
 - 1) Company reporting > Admin; 2) Admin > IMO
 - Verification by Admin according to guidelines
 - Anonymized data base
- Part of a 3-step approach:
 1. *Data collection; start 2019*
 2. *Analysis of data; start 2020/21*
 3. *Debate on reduction measures; start 2023??*

III b) Global Data Collection System

- Looks a lot like EU MRV (scope, etc.)
- But important differences as well
 - *No cargo parameter (to calculate energy efficiency)*
 - *No transparency*
 - *Reporting in two steps: company > Administration; Administration > IMO*
 - *Verification still to be negotiated ...*



III c) Comprehensive Strategy on Reduction of GHG emissions

- IMO decided on Roadmap to develop a comprehensive strategy
- Initial Strategy to be agreed in 2018
- Important question: ambition level
 - *Growth budget under Paris Agreement*
 - *Abatement potential*
 - *Growth scenario's (impact EEDI)*
 - *Cost impact (transport industry, shippers)*



III c) Comprehensive Strategy on Reduction of GHG emissions

- EU aims for an ambitious target; contribution to the Paris Agreement
- Can't afford to wait until 2023 to start contemplating action
- Industry has a role to play to get IMO to deliver on a robust and effective GHG policy

Thank you for your attention!

