



# EEDI Requirements and Future Subjects



## International Workshop on Ship Technologies Related to Energy Efficiency Design Index (EEDI)

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# International Maritime Organization



- IMO – a United Nations specialized organization.
- Maritime safety, security and marine environmental protection.
- Primary international conventions:
  - Safety of Life at Sea (SOLAS);
  - International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)
- MARPOL Annex VI – Regulations for the Prevention of Air Pollution from Ships

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# EEDI - Background



- Resolution 8 of the 1997 Conference of Parties that adopted MARPOL Annex VI
  - Urged parties to consider strategies to reduce CO<sub>2</sub> emissions
- IMO began discussing CO<sub>2</sub> reduction
  - Developed vs Developing
  - IMO vs UNFCCC
  - CBDR vs No more favorable treatment
- Annex VI Amendments establishing EEDI adopted July 2011
  - Not the normal amendment adoption process

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# EEDI Requirements



- Chapter 4 of MARPOL Annex VI – “*Regulations on energy efficiency for ships*” entered into force on 1 January 2013;
- EEDI reduction factors relative to reference line:
  - Phase 1 ~ 10% reduction – effective January 2015
  - Phase 2 ~ 20% reduction – effective January 2020
  - Phase 3 ~ 30% reduction – effective January 2025
- Ship Efficiency Management Plan (SEMP)
- Minimum power

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# EEDI Status



- Review of the Status of Technological Developments (MARPOL Annex VI, Chapter 4, regulation 21.6)
  - Reviews conducted at beginning of Phase 1 & mid-point of Phase 2;
  - IMO currently in midst of Phase 1 review - Japan is coordinating through an MEPC intercessional correspondence group.

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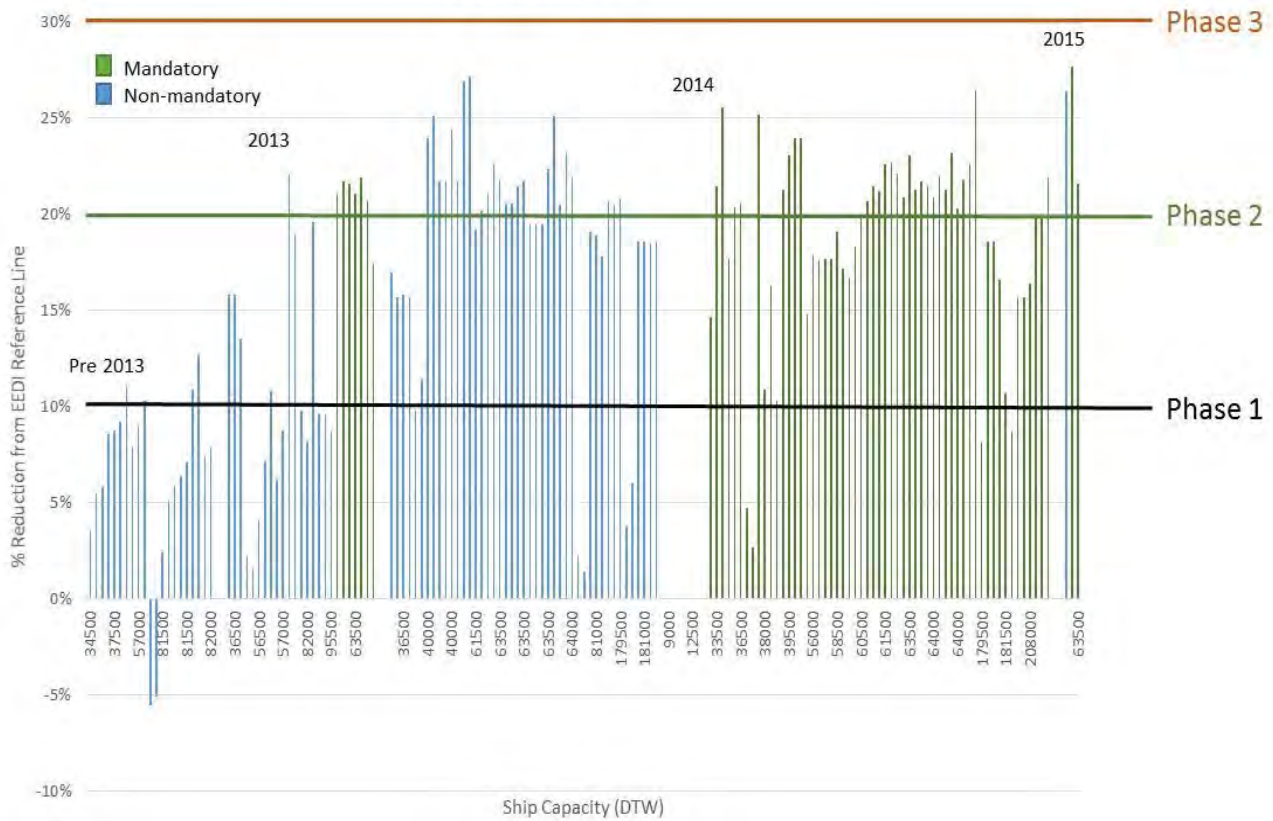
# EEDI Status



- Ships have only begun to meet EEDI Phase 1 standard (2015)
- Data available on ships since 2013
  - So far, so good.
  - No issues achieving Phase 1
  - EEDI database information suggests Phase 2 is achievable

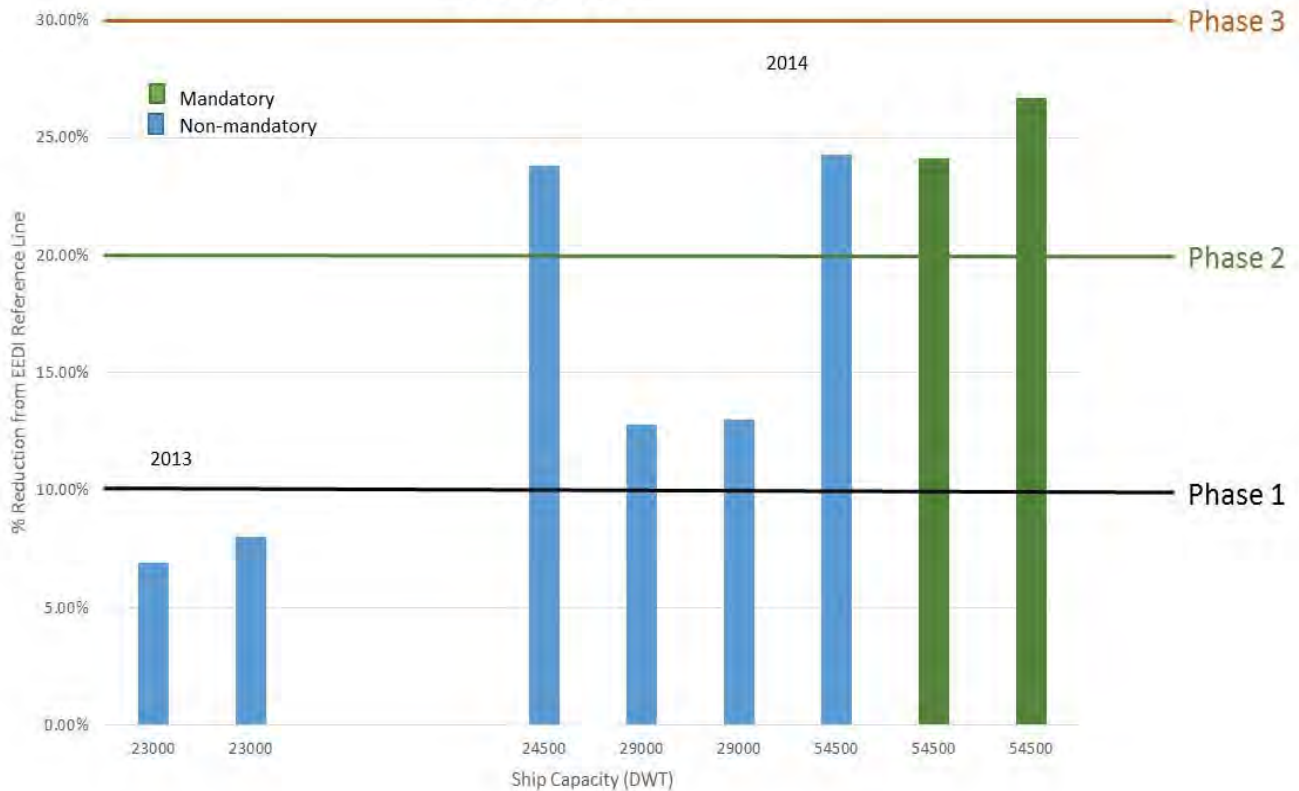
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## Bulk Carrier



Data source: MEPC 68/INF.13 (16 February 2015) EEDI database – Review of status of technological development (MARPOL regulation VI/21.6)

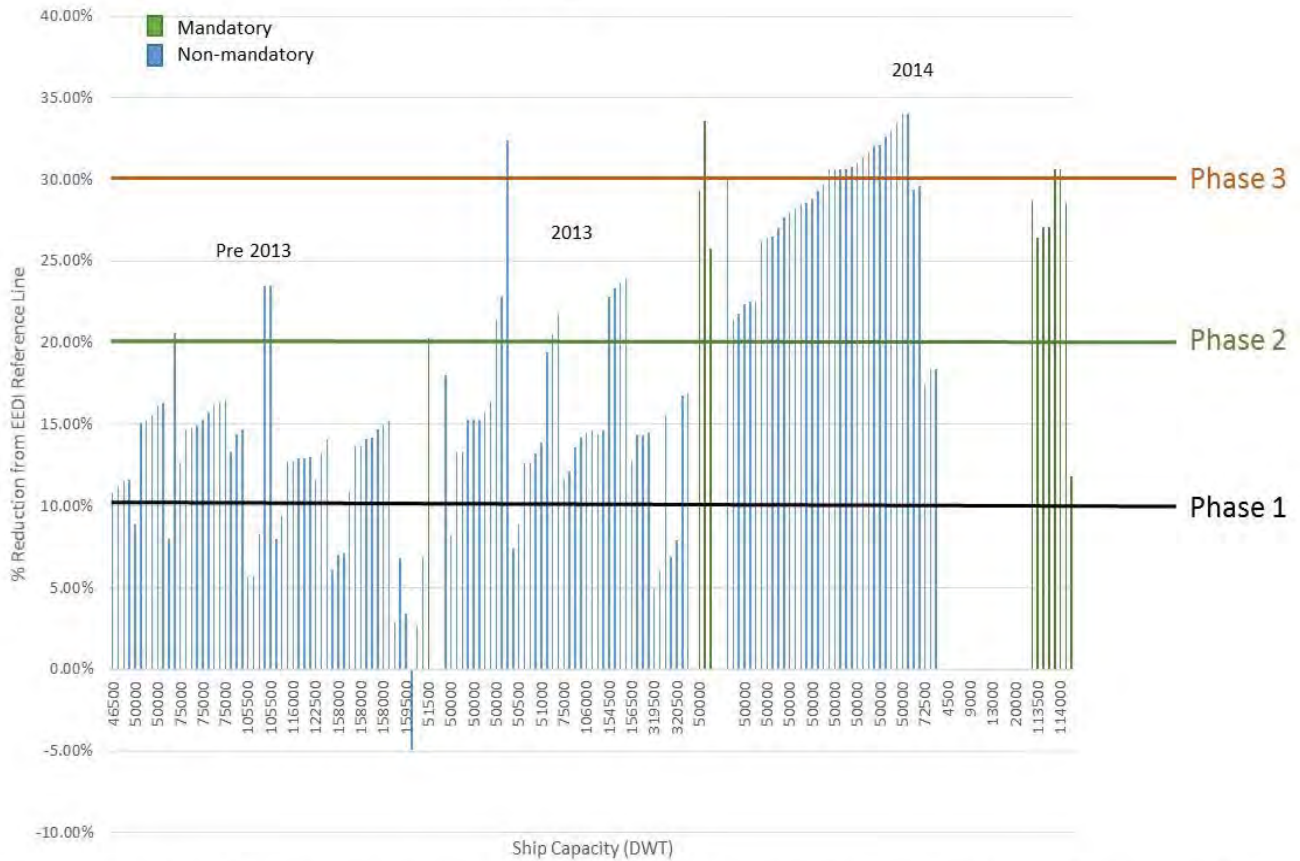
## Gas Carrier



Data source: MEPC 68/INF.13 (16 February 2015) EEDI database – Review of status of technological development (MARPOL regulation VI/21.6)

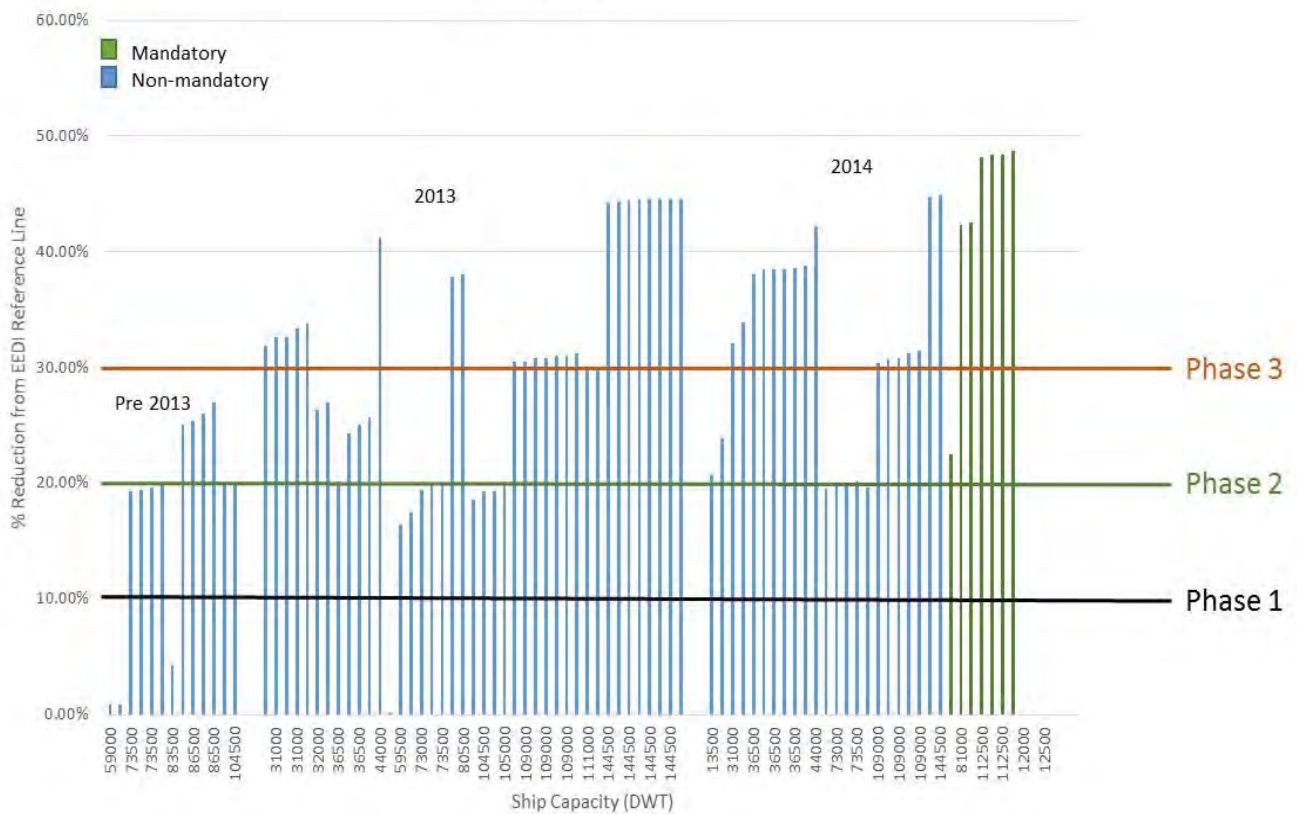


## Tanker



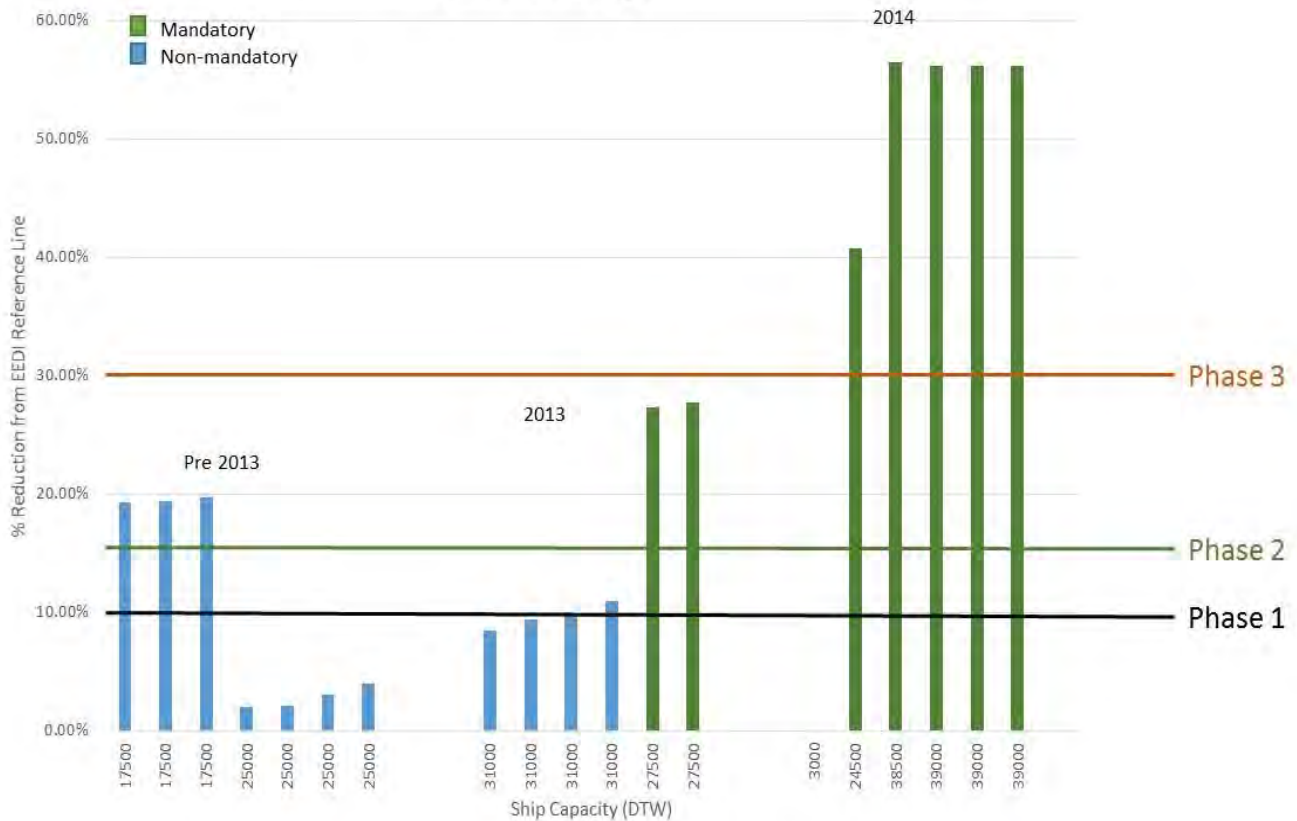
Data source: MEPC 68/INF.13 (16 February 2015) EEDI database – Review of status of technological development (MARPOL regulation VI/21.6)

## Container



Data source: MEPC 68/INF.13 (16 February 2015) EEDI database – Review of status of technological development (MARPOL regulation VI/21.6)

## General Cargo



Data source: MEPC 68/INF.13 (16 February 2015) EEDI database – Review of status of technological development (MARPOL regulation VI/21.6)



## EEDI Status



- Ships can meet Phase 1 and Phase 2 EEDI standards
  - All ships exceed Phase 0 and Phase 1
  - 68% meet/exceed Phase 2
- Energy efficiency improvements not a function of ship size
- Container ships show largest improvement
- Tankers delivered in 2014 or 2015 achieved Phase 2 standard
- Bulk carriers need additional improvement to meet Phase 2, but are close (~15%)



# Minimum Power



- Minimum propulsion power (MARPOL Annex VI, Chapter 4, regulation 21.5)
- Ships subject to EEDI required to have a minimum propulsion power to maintain maneuverability under adverse weather.
- IMO interim guidelines for determining minimum power – MEPC.1/Circ.850/Rev.1 (Resolution MEPC.232(65), amended by MEPC.255(67) and MEPC.262(68))
- Int'l research projects to help refine guidelines
  - EU “SHOPERA”
  - Japan

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# Ship Energy - Future



- Determine if changes are needed to timing, EEDI reference lines and reduction rates
  - Complete technology reviews at Phase 1 and Phase2
  - Increasing EEDI reduction will be difficult
- Consider existing ships
  - Data collection currently under discussion
  - Understand current efficiency of existing ships
- UNFCCC

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**THANK YOU**