

Crash Course

# MRV

**CARBON TRADING &  
SHIP ENERGY EFFICIENCY**

1<sup>st</sup> - 2<sup>nd</sup> March 2018 | Lisbon | Portuguese Nautical College

## Crash Course Programme

MRV Regulations are new to most shipowners and operators, constituting a tool of the Carbon Market. If adequate ships energy practices are not in place, unexpected costs may rise. Come and learn the ins and outs with TecnoVeritas, an accredited verifier by EMSA.

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MRV INDEPENDENT VERIFIERS

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## Day One - Thursday 1<sup>st</sup> March 2018

08h30 Reception

09h00 Introduction to the Crash Course

09h30 **Module I - Climate Change and the Shipping**

**Environmental Pollution - The Greenhouse Gas Effect**  
*Types of air pollution and its origins; Climate system; Greenhouse Gas (GHG) effect on climate change; The impacts on oceans; The industrialization impact; The transportation "boom"; The need to mitigate air pollutants; Threefold rationale for action.*

### Combustion

*Fossil fuels origins and compositions; The combustion principles; Combustion by-products; Low Carbon Fuels, Hydrogen; Energy Efficiency Plan.*

### International bodies response to air pollution

*Background; The United Nations Environment Programme (UNEP); Intergovernmental Panel on Climate Change (IPCC); The United Nations Framework Convention on Climate Change (UNFCCC); The Kyoto protocol; Specialized transport agencies : ICAO and IMO.*

### Shipping impact on climate change

*Emissions from Shipping; IMO Studies; MRV Regulation.*

10h45 Questions

11h00 Coffee Break

11h15 **Module II - Mitigation Actions**

*Types of Responses from EU, USA, IMO.*

*Mechanisms of control of emissions, expected impact on a fleet OPEX.*

*Impact of shipping contracts of carriage and possible conflicts of interest.*

*Energy Efficient policy and top management commitment.*

*Slow steaming and its economic and technical viability.*

*Importance of the accurate weight declaration.*

*Overall energy management and the ISO 50001.*

12h45 Questions

13h00 Lunch

*The Lunch will be prepared by Docapesca - Portos e Lotas, S.A.*

14h00 **Module III (part I) - Monitoring, Reporting & Verification Process**

*MRV Regulation and Context.*

*Use of external ship's tracking data by shipowners.*

*Materiality and Sampling.*

*Recommendations for improvements issued by verifiers.*

*Preparation of Monitoring Plans by Companies.*

*Assessment of Monitoring Plans by Verifiers.*

15h15 Questions

15h30 Coffee Break

15h45 **Module III (part II) - Monitoring, Reporting & verification Process**

*Backward assessment of Monitoring Plans.*

*Verification of Emissions Report.*

*Monitoring and Reporting of fuel consumption, CO<sub>2</sub> emissions and other relevant parameters.*

*Assessment of verifiers by National Accreditation.*

*Bodies in order to issue and accreditation certificate.*

*Dealing with THETIS Platform.*

16h45 Questions

17h00 End of Session

20h00 Event Dinner

*The Dinner will take place at Messe da Marinha, Cascais.*





## Day Two - Friday 2nd March 2018

08h30 Reception

09h00 **Module IV (part I)- On Board Operations**

The Ship Energy Structure.

Types of Marine Fuels.

Ship Fuel Systems.

Emission Sources on Board Vessels.

Net Calorific Value.

Guidance on Fuel Monitoring.

*(Bunkering operations and Sounding Measurements)*

Trim and list corrections.

10h45 Questions

11h00 Coffee Break

11h15 **Module IV (part II)- On Board Operations**

Conversion of volume to density.

Density corrections.

Sources of Inaccuracy on fuel use on board.

Accuracy and uncertainty of monitored variables.

Calculating the correct amount of fuel.

Types of flowmeters their technologies and associated uncertainties.

Evidences of MRV data and its management.

Consequences of a deficient Monitoring Plan on the fleet OPEX.

12h45 Questions

13h00 Lunch

14h00 **Module V (part I) - Implementation of a MRV System, and the Fleet OPEX**

The connection between MRV and SEEMP.

Tools for voyage energy optimization.

Minimising the energy use, through voyage management.

Planning, Implementation, Monitoring, Evaluation and Improvement.

15h15 Questions

15h30 Coffee Break

15h45 **Module V (part II) - Implementation of a MRV System, and the Fleet OPEX**

Evaluating the results in terms of avoided costs and CO<sub>2</sub> emissions.

Impact of CO<sub>2</sub> emissions on the OPEX of a vessel.

Necessity of having an optimised monitoring plan in service.

Criticism and improvement of a monitoring an energy and emissions plan.

16h45 Questions

17h00 End of Session

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