



# IMO Data Collection System

## Overview

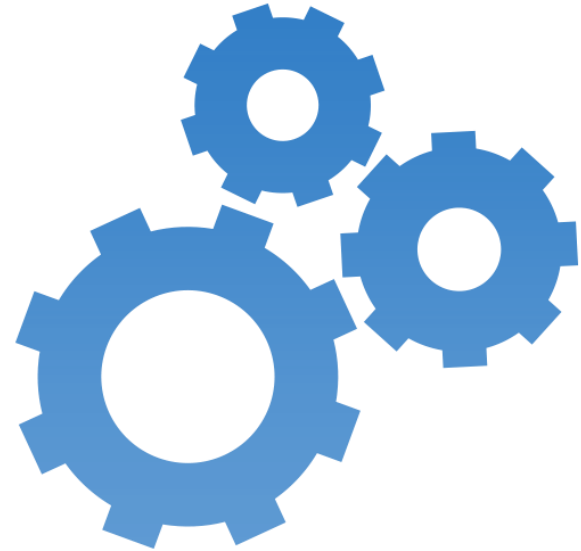
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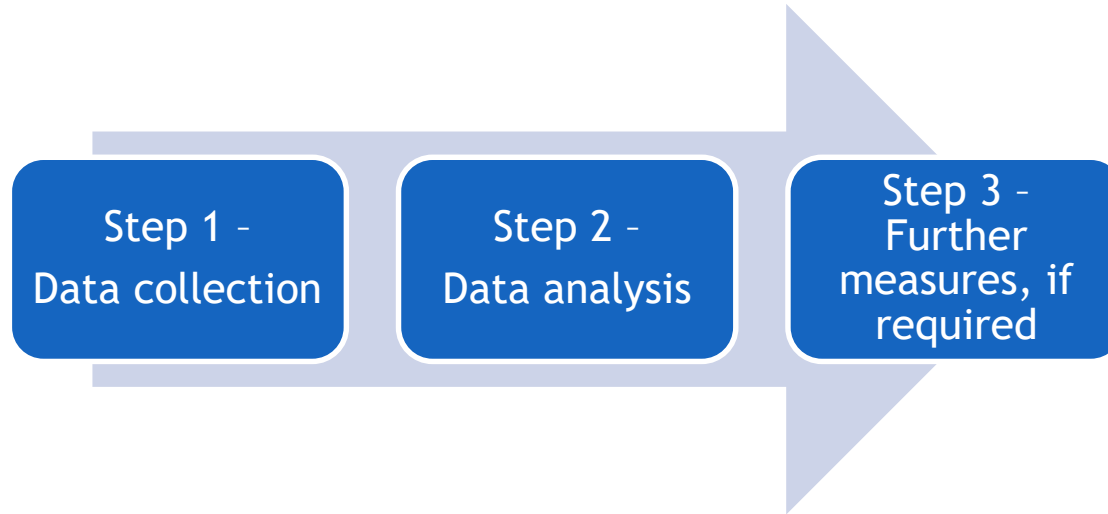
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- 1 IMO DCS – Overview
- 2 The Data Collection Plan (DCP)
- 3 IMO DCS vs. EU MRV
- 4 IMO DCS – How to get ready





**ANNEX 3**

**RESOLUTION MEPC.278(70)  
(Adopted on 28 October 2016)**

**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**

**(Data collection system for fuel oil consumption of ships)**



RESOLUTION MEPC.282(70)

### **GUIDELINES FOR THE DEVELOPMENT OF A SHIP ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)**

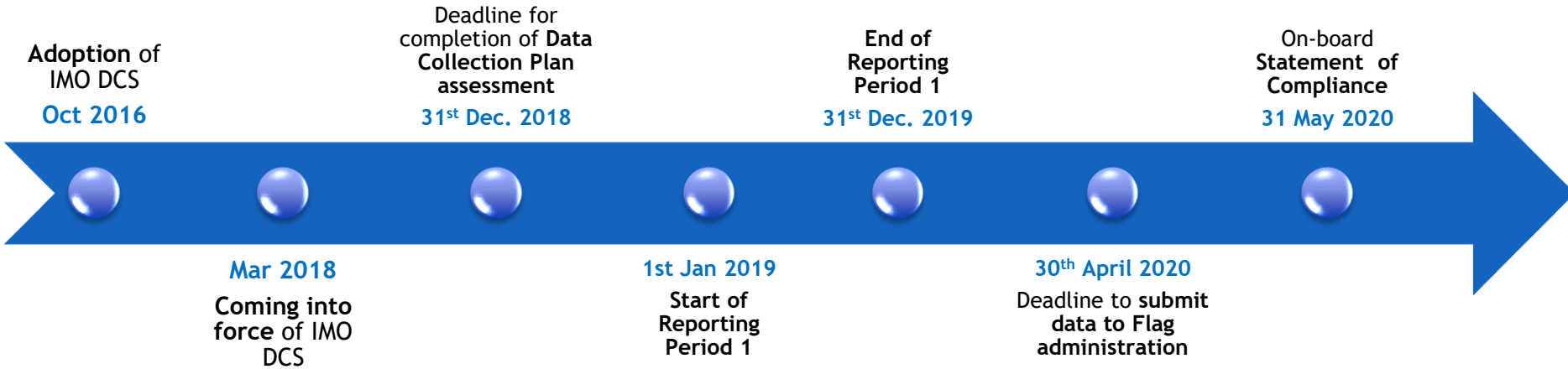
RESOLUTION MEPC.292(71)

### **GUIDELINES FOR ADMINISTRATION VERIFICATION OF SHIP FUEL OIL CONSUMPTION DATA**

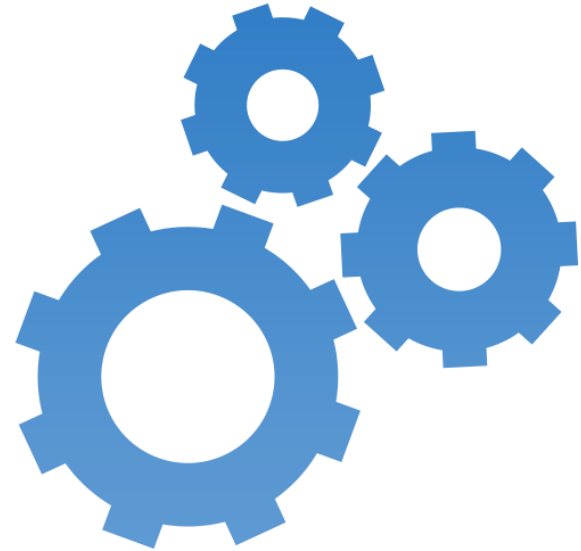
RESOLUTION MEPC.293(71)

### **GUIDELINES FOR THE DEVELOPMENT AND MANAGEMENT OF THE IMO SHIP FUEL OIL CONSUMPTION DATABASE**





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## 1 Ship particulars

Name of ship	
IMO number	
Company	
Flag	
Ship type	
Gross tonnage	
NT	
DWT	
EEDI (if applicable)	
Ice class	



## 2 Record of revision of Fuel Oil Consumption Data Collection Plan

Date of revision	Revised provision

## 3 Ship engines and other fuel oil consumers and fuel oil types used

	Engines or other fuel oil consumers	Power	Fuel oil types
1	Type/model of main engine	(kW)	
2	Type/model of auxiliary engine	(kW)	
3	Boiler	(...)	
4	Inert gas generator	(...)	

#### 4 Emission factor

$C_F$  is a non-dimensional conversion factor between fuel oil consumption and CO<sub>2</sub> emission in the *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.245(66)), as amended. The annual total amount of CO<sub>2</sub> is calculated by multiplying annual fuel oil consumption and  $C_F$  for the type of fuel.

Fuel oil Type	$C_F$ (t-CO <sub>2</sub> / t-Fuel)
Diesel/Gas oil (e.g. ISO 8217 grades DMX through DMB)	3.206
Light fuel oil (LFO) (e.g. ISO 8217 grades RMA through RMD)	3.151
Heavy fuel oil (HFO) (e.g. ISO 8217 grades RME through RMK)	3.114
Liquefied petroleum gas (LPG) (Propane)	3.000
Liquefied petroleum gas (LPG) (Butane)	3.030
Liquefied natural gas (LNG)	2.750
Methanol	1.375
Ethanol	1.913
Other (.....)	

## 5 Method to measure fuel oil consumption

The applied method for measurement for this ship is given below. The description explains the procedure for measuring data and calculating annual values, measurement equipment involved, etc.

Method	Description

### *Data Collection Plan should specify:*

- *How the ship will operationalize the summation of BDN information and conduct tank readings*
- *Method for tank readings (automated systems, soundings and dip tapes)*
- *Flow meters and their link to specific fuel oil consumers*
- *Calibration of the flow meters*
- *Any corrections, e.g. density, temperature, if applied*



## 6 Method to measure distance travelled

Description

- *Distance travelled over ground in nautical miles should be recorded in the log-book*
- *Distance travelled while the ship is underway under its own propulsion*
- *Other methods to measure distance travelled accepted by the Administration may be applied.*

## 7 Method to measure hours underway

Description

- *Hours underway should be an aggregated duration while the ship is underway under its own propulsion.*

## 8 Processes that will be used to report the data to the Administration

Description



## 9 Data quality

Description

- *Plan should / could include:*
  - *Data quality control measures which should be incorporated into the existing SMS*
  - *Procedure for identification of data gaps and correction thereof*
  - *Procedure to address data gaps*





Method used to measure fuel oil consumption <sup>9</sup>		
Fuel oil consumption (t)	Other(.....)	
	(C <sub>f</sub> ;.....)	
	Ethanol (C <sub>f</sub> : 1.913)	
	Methanol (C <sub>f</sub> : 1.375)	
	LNG (C <sub>f</sub> : 2.750)	
	LPG (Butane) (C <sub>f</sub> : 3.030)	
	LPG (Propane)	
	HFO (C <sub>f</sub> : 3.114)	
	LFO (C <sub>f</sub> : 3.151)	
	Diesel/Gas Oil (C <sub>f</sub> : 3.206)	
Hours underway (h)		

Distance Travelled (nm)		
Power output (rated power) (kW) <sup>8</sup>	Auxiliary Engine(s)	
	Main Propulsion Power	
Ice class <sup>7</sup> (if applicable)		
EEDI (if applicable) <sup>6</sup> (gCO <sub>2</sub> /t.nm)		
DWT <sup>5</sup>		
NT <sup>4</sup>		
Gross tonnage <sup>3</sup>		
Ship type <sup>2</sup>		
IMO number <sup>1</sup>		
End date (dd/mm/yyyy)		
Start date (dd/mm/yyyy)		

- 1 In accordance with the *IMO Ship Identification Number Scheme*, adopted by the Organization by resolution A.1078(28).
- 2 As defined in regulation 2 of MARPOL Annex VI or other (to be stated).
- 3 Gross tonnage should be calculated in accordance with the International Convention on Tonnage Measurement of Ships, 1969.
- 4 NT should be calculated in accordance with the International Convention on Tonnage Measurement of Ships, 1969. If not applicable, note "N/A".
- 5 DWT means the difference in tonnes between the displacement of a ship in water of relative density of 1025 kg/m<sup>3</sup> at the summer load draught and the lightweight of the ship. The summer load draught should be taken as the maximum summer draught as certified in the stability booklet approved by the Administration or an organization recognized by it.
- 6 EEDI should be calculated in accordance with the *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*, as amended, adopted by resolution MEPC 245(66). If not applicable, note "N/A".
- 7 Ice class should be consistent with the definition set out in the *International Code for ships operating in polar waters (Polar Code)*, adopted by resolutions MEPC.264(68) and MSC.385(94)). If not applicable, note "N/A".
- 8 Power output (rated power) of main and auxiliary reciprocating internal combustion engines over 130 kW (to be stated in kW). Rated power means the maximum continuous rated power as specified on the nameplate of the engine.
- 9 Method used to measure fuel oil consumption: 1: method using BDNs, 2: method using flow meters, 3: method using bunker fuel oil tank monitoring

## STATEMENT OF COMPLIANCE – FUEL OIL CONSUMPTION REPORTING

Issued under the provisions of the Protocol of 1997, as amended, to amend the International Convention for the Prevention of Pollution by Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

.....  
*(full designation of the Party)*

by .....  
*(full designation of the competent person or organization authorized under the provisions of the Convention)*

### Particulars of ship<sup>7</sup>

Name of ship .....

Distinctive number or letters .....

IMO Number<sup>8</sup> .....

Port of registry .....

Gross tonnage .....

### THIS IS TO DECLARE:

1. That the ship has submitted to this Administration the data required by regulation 22A of Annex VI of the Convention, covering ship operations from (dd/mm/yyyy) through (dd/mm/yyyy); and
2. The data was collected and reported in accordance with the methodology and processes set out in the ship's SEEMP that was in effect over the period from (dd/mm/yyyy) through (dd/mm/yyyy).

This Statement of Compliance is valid until (dd/mm/yyyy) .....

Issued at: .....  
*(place of issue of Statement)*

Date (dd/mm/yyyy) .....

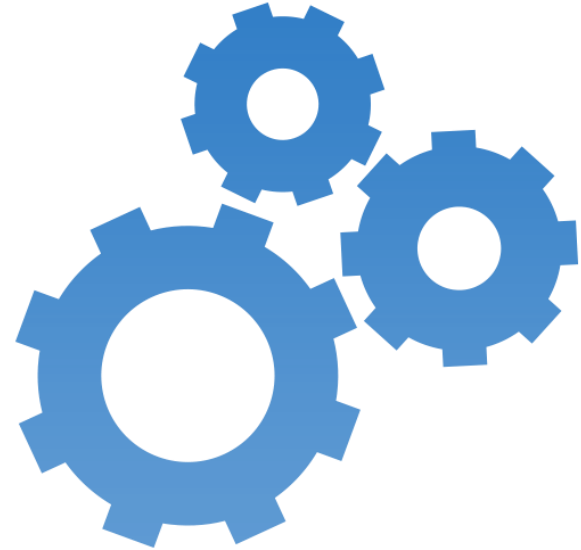
*(date of issue)*

*(signature of duly authorized official  
issuing the Statement)*

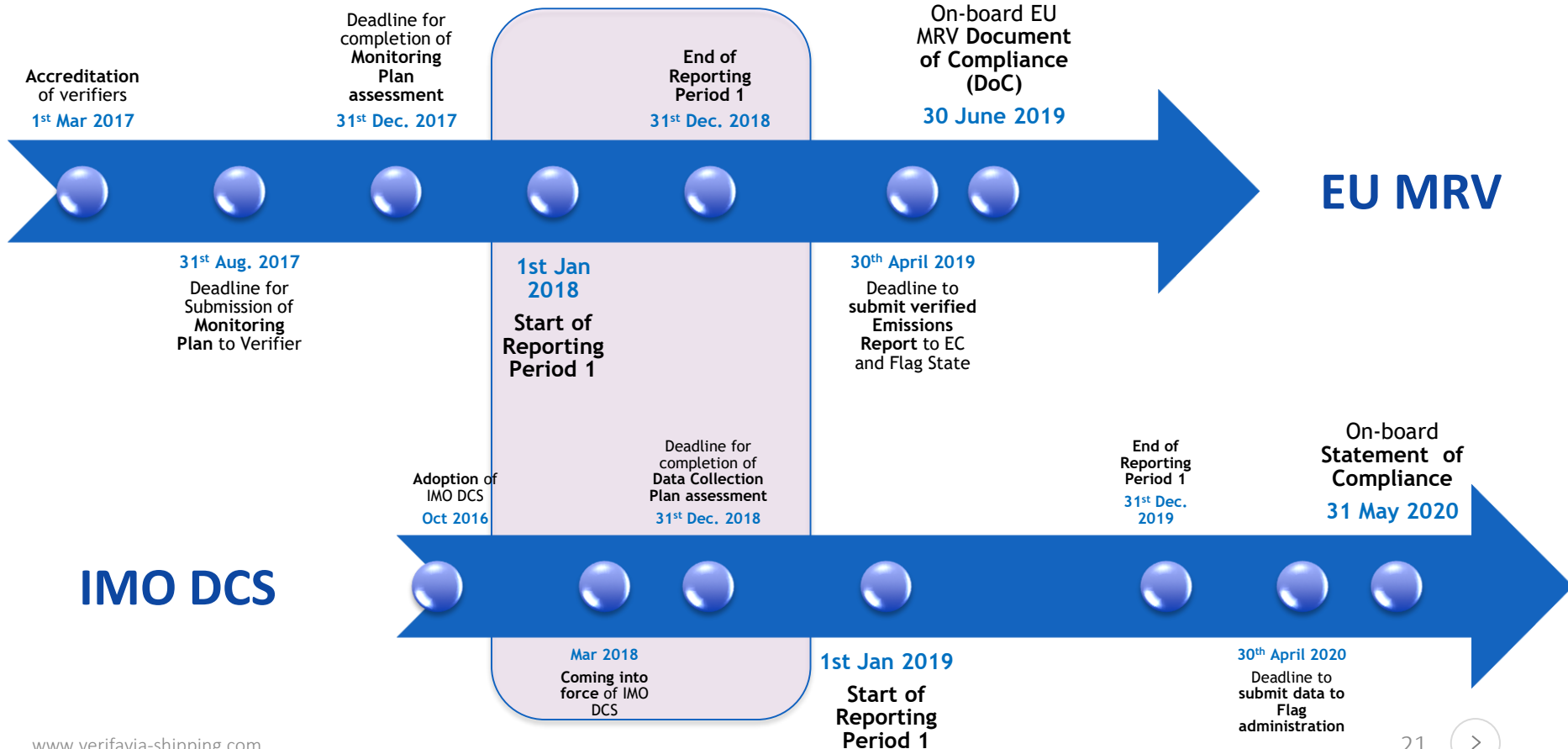
*(seal or stamp of the authority, as appropriate) "*



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# Timeline Comparison



## EU MRV



All ships above 5000 GT



Regardless of Flag or country of ownership



Calling at an EU port from 1 January 2018



And carrying cargo or passengers for commercial purposes

## IMO DCS



All ships of 5000 GT or above



Regardless of Flag or country of ownership



Performing international voyages



Platforms, including FPSOs, FSUs and drilling rigs excluded





The accountable entity is the **Ship**

Every ship must:

## EU MRV

- ✓ Develop a Monitoring Plan and have it assessed
- ✓ Monitor and report emissions and activity data
- ✓ Have the Emissions Report independently verified
- ✓ Carry on-board a Document of Compliance (DOC)

Every ship must:

## IMO DCS

- ✓ Develop a Data Collection Plan and have it assessed
- ✓ Monitor and report fuel, distance and hours underway
- ✓ Have the Data verified
- ✓ Carry on-board a Confirmation of Compliance (CoC) and a Statement of Compliance (SoC)



The responsible entity is the  
**Company**

## EU MRV & IMO DCS

The **Company** means ‘the shipowner or any other organisation or person, such as the manager or the bareboat charterer, which has assumed the responsibility for the operation of the ship from the shipowner’

>>> ISM Manager



# Which parameters must be monitored and reported?

## EU MRV



Fuel  
Consumption  
at Sea



Fuel  
Consumption  
at berth



Time  
at Sea



Distance  
Sailed



Cargo  
On-board



Transport  
work



Energy  
Efficiency  
parameters

## IMO DCS



Total Fuel  
Consumption



Hours  
underway



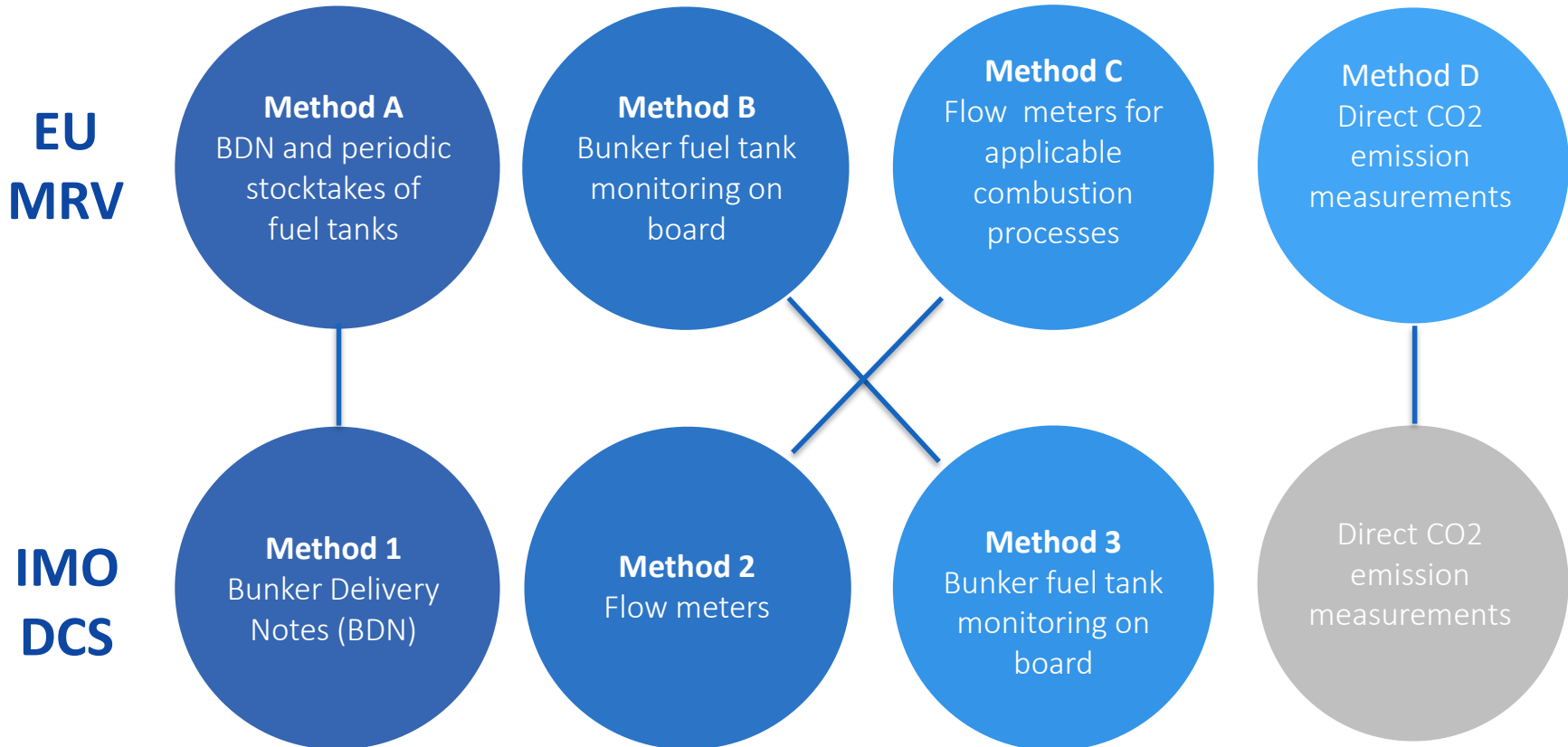
Distance  
Travelled

! *Hours underway and distance travelled shall be considered while the ship is underway under its own propulsion*

! *Fuel consumption shall be considered regardless of whether a ship is underway or not*

! *Distance travelled is distance over ground, e.g. distance travelled measured using satellite data*

# Which are the monitoring methodologies available?



## EU MRV & IMO DCS



- Main engines
- Auxiliary engines
- Boilers
- Gas turbines
- Inert gas generators

## EU MRV & IMO DCS

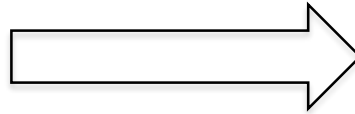


Type of Fuel	IMO Values MEPC.245(66) (t CO2 / t fuel)
Heavy Fuel Oil	3.114
Light Fuel Oil	3.151
Diesel/Gas Oil	3.206
Liquefied Petroleum Gas (Propane)	3.000
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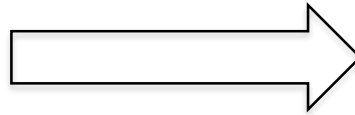
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IMO number	
Company	
Flag	
Ship type	
Gross tonnage	
NT	
DWT	
EEDI (if applicable)	
Ice class	



Same as EU MRV

## 2 Record of revision of Fuel Oil Consumption Data Collection Plan

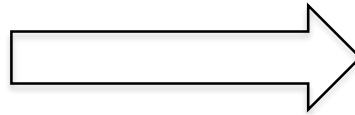
Date of revision	Revised provision



Same as EU MRV

## 3 Ship engines and other fuel oil consumers and fuel oil types used

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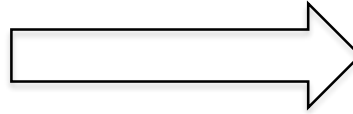


Same as EU MRV

## 4 Emission factor

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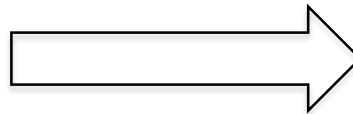


Same as EU MRV

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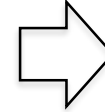
Method	Description



Same as EU MRV

**6 Method to measure distance travelled**

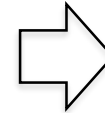
Description



**Same as EU MRV**

**7 Method to measure hours underway**

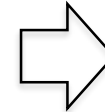
Description



**Specific to IMO DCS**

**8 Processes that will be used to report the data to the Administration**

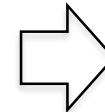
Description



**Specific to IMO DCS**

**9 Data quality**

Description



**Same as EU MRV**



# EU MRV and IMO fuel data system compared - Summary

	EU MRV	IMO DCS
<b>Entry into force</b>	1 <sup>st</sup> July 2015	1 <sup>st</sup> March 2018
<b>Scope</b>	Ships above 5'000 GT Voyages to / from EEA ports of call	Ships 5'000 GT or above International voyages
<b>First monitoring period</b>	2018	2019
<b>Procedures</b>	Monitoring Plan (37 sections)	Data Collection Plan (SEEMP Part II) (9 sections)
<b>Compliance (procedures)</b>	Assessment Report (no need to be on-board)	Confirmation of Compliance (must be on-board)
<b>Reporting</b>	Fuel consumption (port / sea) Carbon emissions Transport work (actual cargo carried) Distance sailed Time at sea excluding anchorage	Total fuel consumption Distance travelled Hours underway Design deadweight used as proxy
<b>Verification</b>	Independent accredited verifiers	Flag administrations or Authorized Organizations
<b>Compliance (reporting)</b>	Document of Compliance (June 2019)	Statement of Compliance (May 2020)
<b>Publication</b>	Distinctive public database	Anonymous public database





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- **Use EU MRV Monitoring Plan** data and information to complete IMO DCS Data Collection Plan
  - If valid for EU MRV >>> likely to be valid for IMO DCS
- **Streamline procedures** to ensure common and consistent set of procedures valid for both EU MRV and IMO DCS
- **Upgrade IT tools** to ensure data is collected for all ships worldwide consistently
- One **common IT platform / data collection process** >>> two separate reports:
  - EU MRV Emissions Report
  - IMO DCS Fuel Data Report

# Thank You

Get in touch with us!

Julien Dufour, CEO

Nicolas Duchêne, COO

Nikolas Theodorou, MD Verifavia Shipping (Hellas)

Yuvraj Thakur, Commercial Director Asia-Pacific

Maxime Wets, Senior Auditor

Verifavia (UK) Ltd. :

20-22 Wenlock Road, London N1 7GU (UK), +44 207 117 2540

Verifavia SARL:

33 avenue du Maine, 75015 Paris (FR), +33 665 697 489

Verifavia Shipping (Hellas):

Parodos Leof. Vouliagmenis 12, 17763 Athens (GR), +30 6956 302 131

[contact@verifavia-shipping.com](mailto:contact@verifavia-shipping.com)

[www.verifavia-shipping.com](http://www.verifavia-shipping.com)

