	<p>HEALTH, SAFETY, ENVIRONMENT AND QUALITY MANAGEMENT SYSTEM</p> <p>56.0 SEEMP, EU MRV AND IMO DCS</p> <p>ON THE JOB TRAINING</p>	<p>OJT : 056 Page : 1 of 4 Date : 01-Feb-24 Rev : 10.0 Appr : BMM</p>
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VESSEL: _____

DATE: _____

Details of Training: SEEMP, EU MRV and IMO DCS


IMO is setting up goal to reduce carbon emissions in stages and has set various measures to achieve the goal. Ships are required to perform efficiently to reduce the CO2 emissions based on the ship design and operations.

Ship Energy Efficiency Management Plan (SEEMP)

- Each ship shall keep on board a ship specific Ship Energy Efficiency
- Management Plan (SEEMP). (MARPOL ANNEX VI, Reg. 22.1)
- The purpose of a Ship Energy Efficiency Management Plan (SEEMP) is to establish a mechanism for a company and/or a ship **to improve the energy efficiency of a ship's operation for reducing global carbon emissions.**
- The requirement to keep SEEMP **on board entered in force from 1st Jan 2013.**
- The SEEMP seeks to improve a ship's energy efficiency through four steps: planning, implementation, monitoring (daily monitoring of fuel consumption), and self-evaluation and improvement.
- The best practices for fuel-efficient operation of ships were identified as following but compliance was on a voluntary basis:
 - **Fuel-Efficient Operations:** Improved voyage planning, Weather routing, optimum speed to reach port just in time where operational matters support, Speed optimization, Optimized shaft power
 - **Optimized ship handling:** Optimum trim, Optimum ballast, Optimum use of rudder and heading control systems (autopilots),
 - **Hull maintenance:** Hull cleaning, propeller cleaning and polishing for reducing the resistance. The smoother the hull, the better the fuel efficiency.
 - **Propulsion system:** Propulsion system maintenance to maintain the efficiency, use of fuel additives, Adjustment of cylinder lubrication oil consumption, Valve improvements, Torque analysis; and automated engine monitoring systems.
 - **Improved fleet management:** to avoid or reduce long ballast voyages through improved fleet planning
 - **Improved cargo handling:** optimum solutions matched to ship and port requirements
 - **Energy management:** efficient utilization of energy

Energy Efficiency Operational Indicator (EEOI) is defined as the ratio of mass of CO2 (M) emitted per unit of transport work. Indicator provides useful information on the ship's performance with regard to fuel efficiency based on the operations. (Refer MEPC.1/Circ.684)

Energy Efficiency Design Index (EEDI) - The mandatory regulation for decreasing the carbon emissions starts with EEDI at design stage. EEDI provides a newbuilding standard, assuring that ship designs achieve a certain level of efficiency and decrease carbon emissions. Shipyard is responsible for the calculation of the EEDI, which is then verified by Class.

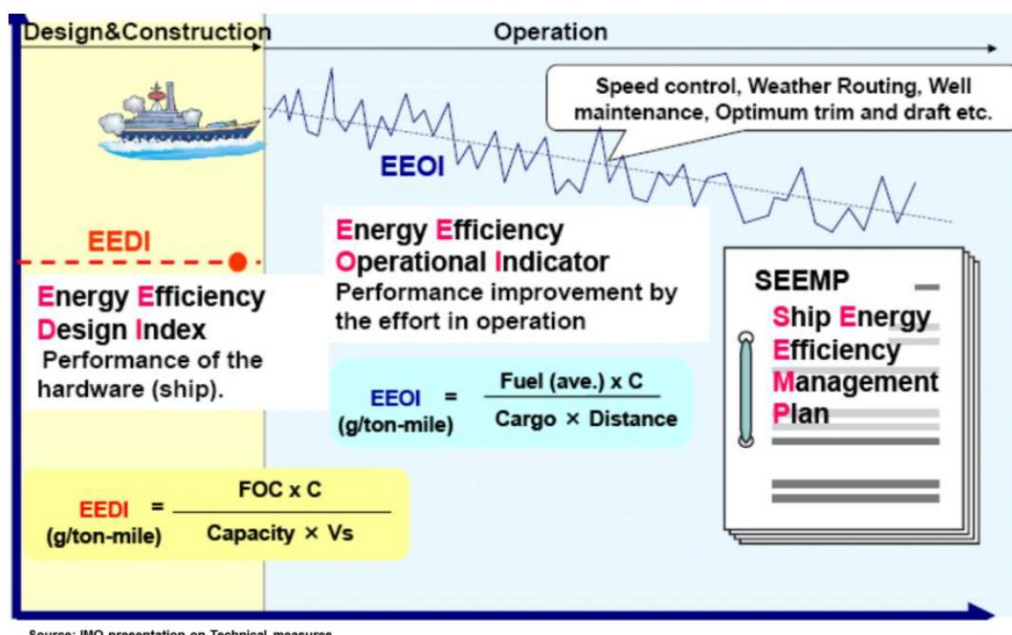
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Shipyards prepare a technical file containing the EEDI calculation which is quite complex.

EEDI is applicable to ships for which the building contract is placed on or after 1 January 2013 or to ships delivered after January 1, 2015.

EEDI Technical File is a document that contains the information necessary for the calculation of the attained EEDI and that shows the process of calculation.


EEDI and EEOI a glance



European Union Monitoring, Reporting and Verification (EU MRV) of CO₂ emissions from ships, the data collection started with effect from 1 January 2018. EU MRV is mandatory for ship's voyages to, from and within the EU area. Data is collected daily using Software Program (e.g. BlueTracker, Stratum etc). (Refer ship's EU MRV Plan)

IMO Data Collection System (IMO DCS): Ship Fuel Oil Consumption Data Collection Plan (SEEMP II) contains a ship-specific method to collect, aggregate, and report ship data with regard to annual fuel oil consumption, distance travelled, hours underway and other data required by regulation 22A of MARPOL Annex VI to be reported to the Administration (flag state). The data collection which is mandatory by IMO started with effect from 1 January 2019 (Refer Resolution MEPC.282(70)).

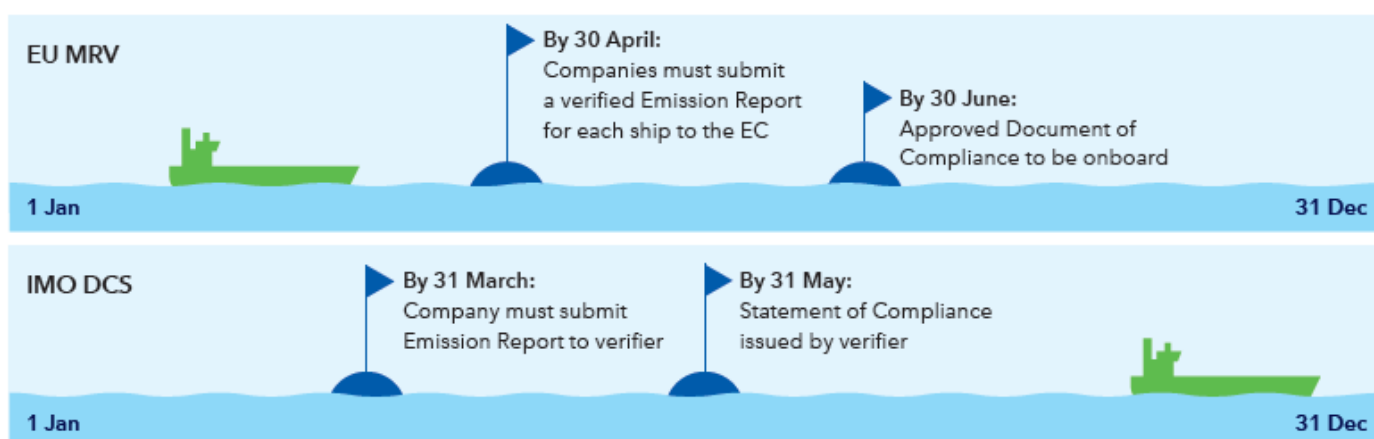
MRV and DCS requirements are mandatory, and are the first step in a larger process to collect and analyse shipping emissions data.

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EU MRV AND IMO DCS AT A GLANCE


	EU MRV	IMO DCS
Applicability	From 1 Jan 2018, vessels calling EU ports	From 1 Jan 2019, Global application
Data reporting from ship	<ul style="list-style-type: none"> Distance sailed; time spent at sea Amount of each type of fuel consumed in port/at sea Cargo quantity carried 	<ul style="list-style-type: none"> Distance sailed Amount of each type of fuel consumed in total Hours underway under own propulsion Deadweight
Data submission by office	<ul style="list-style-type: none"> Annual data is submitted to accredited verifier e.g. Verifavia if vessel called EU port in previous year. 	Annual data is submitted to RO (Korean Register) before 31st March each year.
Verification and data submission to EU & IMO	Annual Emission Report is verified by an accredited verifier e.g. Verifavia Verified Emission Report submitted to the European Commission via THETIS-MRV by 30 th April	Fuel oil consumption is verified by RO/Flag annually RO (Korean Register) reports the verified fuel oil consumption data to the IMO's GISIS database
Documents required on board	EU MRV Plan Document of Compliance (before 30 th June if vessel called any EU port in previous year)	IMO Data Collection Plan (SEEMP Part II) Confirmation of Compliance–SEEMP Part II Statement of Compliance (before 31 st May each year)

MILESTONES - AN ANNUAL CYCLE



Monitoring and reporting for the UK MRV: UK is no longer part of EU after BREXIT; the first monitoring period starts from 1 January 2022 for vessels calling at UK port. The first UK MRV Emissions Reports will have to be verified by 30 April 2023 for the 2022 data.

The emission data collection under both regimes is same. A separate UK MRV plan is not required, refer ClassNK notice in this regard.

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The data on board is to be continued submitting as usual using the program which will identify and collect UK MRV, EU MRV and IMO DCS data and produce the reports covering all three reporting schemes.

Required documents on board: ClassNK notice for UK MRV plan and Document of Compliance (before 30th June if vessel called any UK port in previous year from a non-EU port)

Please refer following documents before signing the OJT:

- SEEMP for its contents
- EEDI Technical file as applicable for new ships
- EU MRV & IMO DCS (SEEMP Part II) plans
- ClassNK notice for UK MRV
- Refer data submission programme

The above has been read and understood :

CO: _____

2O: _____

3O: _____

X2O / X3O _____

JNO _____

D/C _____

2EO _____

3EO _____

4EO _____

ETO _____

JEO _____

E/C _____

Verified by: Master / CEO _____