



Counting down to 2018

April 2015, the European Parliament agreed to the EC's strategy for progressively integrating maritime emissions into the EU's policy for reducing its domestic GHG emissions. Regulation 2015/757 ('Shipping MRV Regulation') came into force July 1, 2015, JULIEN DUFOR* explains what's expected of shipowners and operators

Like it or loathe it, the EU's Shipping MRV Regulation is now a fact of life for more than 10,000 vessels visiting EU ports every year, and compliance is non-negotiable. The first step is the design of a robust monitoring plan, which shipowners are required to submit to a verifier for approval by August 31, 2017.

According to the EU MRV Regulation, any vessel over 5,000gt regardless of flag or nationality, which calls at an EU port on, or after January 1, 2018 to load or unload cargo, or embark or disembark passengers for commercial purposes must monitor and record its fuel consumption and CO₂ emissions.

In addition to CO₂ emissions, the associated transport work must also be recorded, which is the commercial cargo transported, multiplied by the distance sailed. Ballast voyages must also be considered in the same way as laden voyages. Only certain vessels, such as warships, naval auxiliaries and a number of very specialised ships are exempt.

For every vessel that anticipates making a commercial call in an EU port in 2018, a monitoring plan (MP) must be developed. The content of this MP is specified in article 6 of the EU MRV Regulation and must include:

- * Identification of ship and shipping company / ship owner
- * Identification of emissions sources * Description of procedures for monitoring voyages, fuel consumption, and activity data
- * Methodology for data gaps * Procedures for quality control
- * Description of data flows * Identification of responsibilities

The MP must specify which of the four allowed emissions monitoring methodologies the company intends to use, as well as how transport work will be calculated. The MP must be submitted to the verification body by August 31, 2017 and successfully assessed by December 31, 2017, before the start of the first monitoring period.

The emissions and transport work data for 2018 must then be consolidated in an annual report, which must be verified by an

independent accredited verifier by April 30, 2019. Once this is done, the report must be submitted to the EC and the flag state.

Though August 31, 2017 is more than a year away, many proactive organisations are undertaking a 'pre-verification GAP-analysis audit' to identify compliance and system design issues, enabling correction before enforcement begins.

Paving the way for Greek shipowners, Neda Maritime Agency completed a pre-verification GAP-analysis audit earlier this year and is MRV-ready. Neda worked closely with Verifavia Shipping for three months to collect data, perform calculations, complete emissions report templates and ensure it closes the gaps between data already collected, and what will be required to process and report to be MRV compliant.

As part of the audit, the existing data accounting procedures and systems are assessed against the requirements of MRV to identify potential issues and non-compliance. The company's voyages, fuel and cargo data collection, and transmission and transformation procedures are reviewed, and preliminary analysis of carbon emissions and activity data performed. The company's operational documentation is also reviewed to determine it contains sufficient details for the implementation of the allowed fuel consumption monitoring methods.

Companies choosing to act now will be in a stronger position to take timely corrective action and be MRV-ready by the first deadline. They also avoid the potential verification bottleneck that may ensue. In addition, verifiers such as Verifavia Shipping will provide an 'MRV-ready' certificate, which provides assurance to other stakeholders the company is ready for implementation next year. This can be used as a marketing communications tool for charterers, partners and financiers.

To comply with MRV, shipowners must consider the type of data they need to submit, the mechanics of how it might be

* Julien Dufor, is ceo of Verifavia Shipping



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info@jgp.gr

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collected on the ship, and the type of IT system to be used. They must also consider how data will be stored, transferred, extracted, controlled and checked, as well as how the calculations are made and how the report is compiled.

The verifier has a dual role – verification role and the administrative role. As part of the verification role, the submitted MP is assessed against the requirements of the regulation. This process requires the verifier to ensure the processes, procedures and methodology described for collecting and reporting emissions and other data meets the regulation.

It is also the duty of the verifier to verify the emissions report shipowners have to prepare and submit for the first time to the EC and the flag state by April 31, 2019. The procedures used must be verified as conforming to the assessed monitoring plan, and data provided in the report is accurate. The verifier will be expected to deliver the document of compliance every ship must carry on-board from June 2019.

Amidst challenging market conditions and increasingly stringent regulations, the cost of complying with the MRV regulation is a

key concern for shipowners. Costs may be incurred if the company decides to use a consulting company to develop its monitoring plan or take care of the preparation of the emissions report.

There may be a need to purchase a dedicated EU MRV IT system to facilitate the collection of data and automate the generation of the emissions report. Some companies may have to develop in-house tools for this.

Owners looking to commence the compliance process should carefully read the MRV regulation before beginning to draft an MP. When completed, the verifier will be best placed to inform about the upcoming delegated and implementing acts and general principles – as there are a lot of details not necessarily included in the regulation but are included elsewhere. Using experience and knowledge, the verifier will perform a GAP-analysis, recommending any necessary corrective actions.

The MRV regulation is new and unfamiliar to shipping. As with any complex legislation, it makes sense to start on the road to compliance early on.



▲ LOOKING FOR SHIP PROPULSION EFFICIENCY

Awareness for the need for ship propulsion efficiency is rapidly increasing in the maritime world. Cost savings, environmental issues and more stringent legislation are the main reasons for this interest explains **GEORGE VALTAZIS** (pictured), md of Cross Technical Services

With the focus forever becoming more concentrated on fuel consumption and its direct cost relation and link to the environment and greenhouse gas emissions it's becoming imperative that any measuring be accurate before an improvement can be verified.

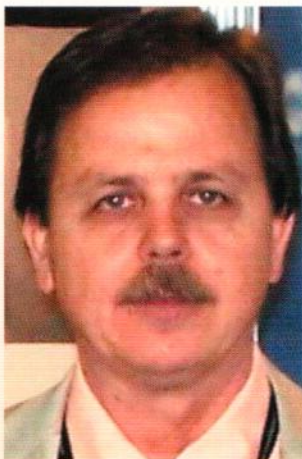
The potential for saving fuel and cutting GHG emissions are greatly enhanced by measuring propeller thrust and hull resistance at full scale.

There are several possibilities offered via full scale measurements of propeller thrust and torque, in relation to other parameters like ship speed, and the change in propeller efficiency and the hull resistance can separately be determined over time. This can be because of propeller or hull fouling, propeller damages and hull coatings.

By measuring the propeller thrust, next to the common used propeller torque, the actual propeller condition can be separated from the ship's hull condition.

This is important to determine: * Proper timing for hull cleaning based on actual hull resistance without propeller condition taken into account * Actual effect of a newly applied hull coating on ships resistance * Proper timing for propeller cleaning which might differ from hull cleaning due to measured difference in fouling condition of hull and propeller * Possible propeller damages, which result in propeller

performance decrease * Optimal propeller efficiency conditions at several ship operational conditions, as an example to determine the effect of variable rpm versus constant rpm on propeller efficiency for a controllable pitch propeller * The effect of energy saving devices, like a BCF or WED, or propeller or hull modifications, like a new bulbous bow design.



The advantage of the thrust measuring route above the power / torque measuring route to measure propulsion performance, is that via thrust measurements, the individual conditions of the propeller and hull can be quantified. The propeller plays an important role in the total propulsion performance decrease of the vessel. In some cases the propeller makes up to 40% of the total ships efficiency reduction. Based on this, proper decisions can be made for either only a propeller cleaning or repair, or only a hull cleaning. Next to this, the effects of for instance a propeller modification, or a new hull paint can be determined much more accurate.

The TT-Sense® thrust and torque sensor has been developed. The sensor, already on the market for more than three years, has been used by pioneering shipping companies to quantify vessel performance and to track the changes in vessel performance over time. Experience has been gained on many vessel types from small cargo vessels to 14,000teu container ships, as well as on navy vessel shaft lines.

In the end, measuring thrust to measure a ship's propulsion performance provides input for a better investment decision for maintenance, propulsion energy saving measures, or GHG reductions.