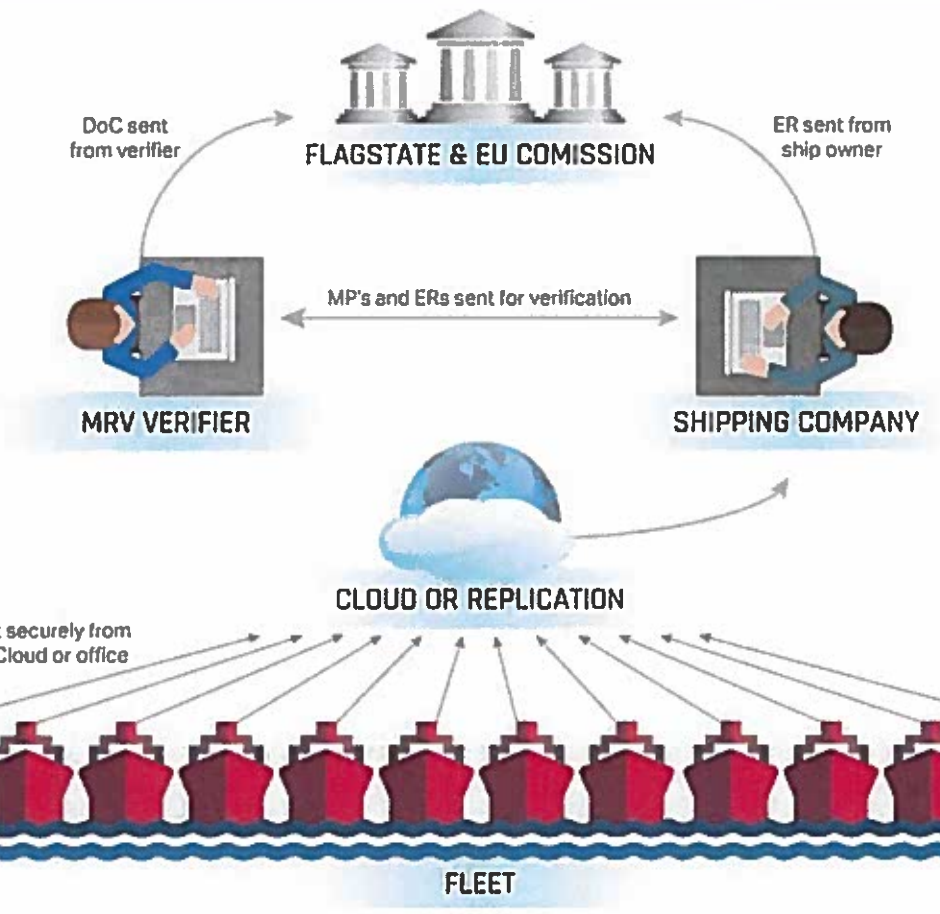
EU MRV Regulation – the time is now

The EU MRV Regulation will add substantially to the data shipowners need to record and report, creating an urgent need to plan and implement a solution, *writes Valerie Cannon, ABS Nautical Systems*

The European Union's Monitoring Reporting and Verification (MRV) regulation comes into force on January 1, 2018, but time to prepare is more limited, as Monitoring Plans must be submitted to the EU Commission in August of 2017.

Shipowners need to prepare well in advance of this date to be sure they have the appropriate IT infrastructure and support in place and to ensure crew and other personnel are properly trained. Solid planning will significantly reduce the workload required to demonstrate MRV compliance and will give shipowners the confidence needed to prepare and submit accurate annual MRV reports.

Irrespective of where a vessel is registered, all ships over 5000GT must begin monitoring CO2 emissions for voyages to, from, between, and including port stays in the EU (with exceptions for fishing vessels, military ships and ships with wooden hulls). Information collected throughout the reporting year from fuel sensors and manual data inputs will have to be merged securely, accurately and transparently for submission of emissions reports to the Commission and respective flag states.



Secure and transparent data collection will be key for MRV

Data storage and integrity quickly become concerns for shipowners when they have to multiply monitoring information and data/reporting calculations by multiple voyages, port stays and ships. A shipowner with 20 vessels has more than 20,000 data points to manage each year just for MRV, contributing to the ever-growing mountain of data shipowners must sift through to make critical business decisions.

The EU Commission anticipates emissions monitoring data will deliver reliable information that can be used to set precise emission reduction targets and to assess the progress of maritime transport's contribution to achieving a low carbon economy within the European Union. Without secure and accurate data capture and storage, however, emissions reduction targets will also be inaccurate.

Inaccurate CO2 reporting can lead to unnecessary costs for shipowners. If CO2 emissions are over-estimated, future regulations could be formulated on the basis of inaccurate information, and shipowners will end up shouldering more of the cost burden for CO2 reductions.

Monitor

Every vessel will be required to have an individualised Monitoring Plan. One of four monitoring methods will be identified in the Plan for each vessel:

- Bunker Fuel Delivery Notes (BDNs) and periodic stock takes of fuel tanks
- Onboard bunker fuel tank monitoring
- Flow meters for applicable combustion processes
- Direct CO2 emission measurements.

The key challenges with choosing an appropriate method of monitoring lie in determining acceptable accuracy, how complex the monitoring will be and the corresponding relative through-life cost.

BDNs and stock takes may be a popular choice for monitoring due to their apparent simplicity, but issues with these methods make the margin of error for CO2 emissions reporting high. Problems with this method are mainly associated with the accuracy of the BDNs and bunker tank measurements.

Continuous fuel consumption monitoring is achieved by taking daily tank soundings. This method can be sensitive to discrepancies between the calculated tank volume and the actual volume consumed due to on-board fuel treatment processes.

Flow meters provide higher accuracy and provide reduced burden on the crew. Automatic data collection means the data is obtained in the form of fuel consumption figures requiring no additional processing. Issues with this methodology generally relate to higher relative life-cycle costs and additional maintenance and calibration requirements. There also needs to be a

backup monitoring method should the primary flow-metering system fail.

Direct emissions monitoring (also known as in situ emissions monitoring) provides continuous, real-time measurement of the content of exhaust gasses. Currently, this technology is in its infancy within the maritime sector.

Installing and maintaining the measuring equipment for this methodology requires substantially increased capital costs, onboard calibration and increased IT infrastructure, including improved remote data transfer capabilities. When this technology matures, however, direct monitoring could provide the most accurate CO2 emissions measuring option.

Information required for MRV for each voyage to or from an EU port includes: voyage number and type; port of arrival/departure and EU port of arrival/departure; date and time of departure and arrival; voyage sailing distance; and fuel type and consumption (HFO, LFO, MGO, LNG and others). Cargo carried will also need to be recorded, and there may be multiple choices for this, plus tonnage.

For each port stay, from the end of sea passage to beginning of next sea passage, a similar list of data points will be required, as well as the days spent at port.

The following calculations based on the above data set are required for reporting:

- Total CO2 emitted based on fuel type
- Total CO2 emitted based on voyage
- Total CO2 emitted for all fuel types
- Total CO2 emitted on voyages between EU ports
- Total CO2 emitted on voyages departing from EU ports
- Total CO2 emitted on voyages arriving at EU ports
- Fuel consumption per distance
- Fuel consumption per transport work (g/t X nm)
- CO2 emissions per distance
- CO2 emissions per transport work
- Total CO2 emissions in port

The mountain of MRV data that will be produced supports the idea that the use of electronic systems that integrate other ship management activities and allow for automated data entry are the only practical approach.

An integrated and secure electronic data capture system can help to create higher confidence in data and calculations related to MRV reporting, while predefined and harmonised forms for data entry can help to reduce or prevent errors.

Also, because communications and information storage are in one system, publication and transmission of information can be facilitated by a centralised approach, while maintaining straightforward version control of documents.

Report

Despite the mountain of data involved, producing a vessel's MRV Annual Report can be achieved in a matter of minutes with an integrated electronic system and is the best way to ensure secure, accurate and transparent data submission for the EU MRV.

Using a centralised system for MRV would also safeguard the user's ability to make submissions in the future should the EU move forward with its own MRV IT tool, as shipowners will be able to electronically submit their Monitoring Plan, Annual MRV Report and Declaration of Conformance.

Direct submission in this way also reduces the opportunities for data tampering and corruption.

The EU MRV Regulation is not the only pending regulation that will require shipowners to employ more robust IT solutions. IT infrastructure demands will continue to expand, and shipowners need to plan for these changes.

Some shipowners already have robust IT solutions and have crews with the skills to support MRV and other reporting requirements, but others need to look at more creative solutions. For shipowners who cannot commit a dedicated staff to maintaining IT based solutions, cloud-based systems will become important options for data management and storage.

Verify

Accuracy, enforceability and transparency are necessary to simplify the verification process and are vital in making the EU MRV Regulation work as planned. Integrated systems will help achieve these goals while reducing the workload on ship operators and owners.

Accredited verifiers will have three main items to verify: that annual ship-specific emissions reports match the monitoring plans; that calculations in the annual reports are accurate; and that the figures contained in the reports are accurate.

Secure electronic submission of the monitoring data directly from an integrated system to a verifier or the Commission will assist in this process, allowing for faster verification.

Owners should assess their current IT systems to see if they have the capabilities to do this. While options for manual reporting exist, they are likely to be insufficiently accurate or robust to provide a long-term platform for compliance.

Even vessels operated with a dedicated ship management software solution for procurement or maintenance are not necessarily outfitted suitably to perform the functions required for MRV compliance, so attention to the issues specific to the MRV requirement should be given.

It is clear that the time to plan and begin implementing appropriate IT solutions, including support and training, is now. By implementing a solution at this time, shipowners should be in a position to ensure stress-free MRV reporting. DS

About the Author
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