

# GHG EMISSIONS RATING

## DNV GL Review: Executive Summary November 2015

On request from RightShip, DNV GL conducted a review of the Greenhouse Gas (GHG) Emissions Rating, involving a comparative assessment of RightShip's Existing Vessel Design Index (EVDI)<sup>TM</sup> and its relation, and difference, to the International Maritime Organisation's EEDI. DNV GL also assessed RightShip's use of EVDI<sup>TM</sup>/EEDI in their GHG Emissions Rating methodology, both of which form part of RightShip's online risk management assessment platform, the Ship Vetting and Information System (SVIS<sup>TM</sup>).

### Content

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This review references the relevant International Maritime Organisation (IMO) Marine Environment Protection Committee (MEPC) resolutions related to EEDI, European Union Energy Efficiency Directive and the IMO GHG Studies of 2009 and 2014. This summary of the GHG Emissions Rating review provides an overview of the analysis undertaken, the results, conclusions and recommendations, and suggestions for further work.

### Analysis

The first focus was the difference between the EVDI<sup>TM</sup> and EEDI, including the impact of RightShip's handling of this information when comparing vessel design efficiency in the GHG Emissions Rating. DNV GL used corresponding EVDI<sup>TM</sup> and EEDI data to highlight any differences.

Utilising a representative dataset of over 10,000 vessels from RightShip's SVIS<sup>TM</sup> database, DNV GL replicated the method for rating vessels from A-G based on their EVDI<sup>TM</sup>/EEDI, using the approach outlined in RightShip's May 2013 Whitepaper, "Calculating and Comparing CO2 Emissions from the Global Maritime Fleet". A review of the definition and use of peer groups was also undertaken, including an examination of some special cases and the A-G rating scale's relationship to the EU Energy Efficiency Directive 2010/30/EU.

Assessments were carried out on the statistical methodology used by RightShip to position the vessels and their respective EVDI<sup>TM</sup>/EEDI data into a normally distributed data set that affects the GHG Emissions Rating of the vessels. This includes to what degree their use of weighting improves or reduces the robustness of the rating. The definition and use of peer groups was also assessed, including analysis of some special cases.

## Results

The EVDI™ as a design efficiency index was found to generally yield a somewhat higher value than the EEDI (referencing the aim for vessels' is to emit less CO2 per tonne transport than their peers). This was supported by analysis of a sample dataset for bulk carriers, where it was observed that the median difference of EVDI™ to EEDI was 5% (thereby EVDI™ being more conservative), which is enough to give an average improvement of A-G rating by over 1 rate, i.e. more than one A-G letter. Thus as noted in RightShip's Whitepaper, there exists an incentive for interested parties (e.g. ship owners / managers) to update ('verify') EVDI™ values to remove any uncertainty that may exist between 'verified' and 'non-verified' ratings.

In its assessment, DNV GL found the GHG Emissions Rating methodology achieved what it was intended to do. It altered the data basis into a normally distributed data set, enabling a relevant comparison of a vessel's EVDI™/EEDI, including the use of peer groups for comparison and purpose and effect of weighting.

## Conclusions and Recommendations

The following conclusions were drawn from the review, including recommendations for RightShip's future consideration. These are suggested to further strengthen the application of the GHG Emissions Rating:

- It was noted there is a trend for the number of A-rated vessels to increase with younger vessel age. This observation, that there seems to be a correlation between year of build and A-G rating, and not only DWT, further strengthens the case of robustness for the scheme.
- RightShip should continue to encourage interested parties (e.g. ship owners / managers) to update ('verify') their respective EVDI™ values to remove any uncertainty that may exist between 'verified' and 'non-verified' EVDI™ values.
- The review undertaken into potentially 'misaligned' cases yielded no conclusive results. However to further enhance transparency and credibility it is recommended that RightShip develop and implement automatic checking of the GHG Emissions Rating for potentially 'misaligned' cases on an ongoing basis. Additionally, a periodic manual check of the affected vessels / peer groups is recommended.
- Visually display specific information related to the basis for the ship's GHG Emissions Rating in RightShip's Whitepaper for RightShip's clients to further enhance transparency and credibility of the methodology.

RightShip is currently updating its GHG Emissions Rating methodology to incorporate DNV GL's recommendations. These minor changes will be communicated in due course and updated in the whitepaper titled "The GHG Emissions Rating Calculating and Comparing Carbon Dioxide Emissions from the Global Maritime Fleet" which is expected to be re-published in early 2016.

Access to the GHG Emissions Rating is also provided free-of-charge at [www.shippingefficiency.org](http://www.shippingefficiency.org)

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