Prevention First 2012
Finding a green ship in a blue ocean

October 2012
• About RightShip
• The Existing Vessel Design Index
• Age vs. Performance
• Practical application examples
• Independent company formed in Oct 2001
  • Melbourne, London & Houston
  • 200+ Customers globally

• Ship Vetting & Risk Management
  • Petroleum & Dry Cargo Vetting Service
  • Environmental Rating & CO₂ Benchmarking

• Worldwide dedicated vetting specialists
  • Former serving Masters and Chief Engineers

• Award winning proven system
  • ISO9001 and ISO27001 Certified
The Existing Vessel Design Index
EEDI – What is it?

• Energy Efficiency Design Index (EEDI)
• A formula produced by the IMO to calculate the amount of CO₂ emitted (in grams) by a vessel for every tonne of cargo carried a nautical mile based on:
  – Total engine power
  – Fuel type & specific fuel consumption
  – Cargo carrying capacity
  – Speed
• Agreed at MEPC 62 in July 2011 and comes in to force for new deliveries from January 2013
EVDI™ – What is it?

• Existing Vessel Design Index (EVDI™)

• This formula produces the amount of CO₂ emitted (in grams) by a vessel for every tonne of cargo carried a nautical mile based on:
  
  – Total engine power
  – Fuel type & specific fuel consumption
  – Cargo carrying capacity
  – Speed

• Developed by RightShip based on the same assumption as the EEDI, this formula can be validly applied to existing vessels right now
EVDI™ – What it is not?

• Not a replacement for the EEDI
• Not a mechanism to drive retrospective legislation
• Not a measure of the vessel’s operational performance
• Not going to tell you if a vessel has been designed efficiently (comparison only)
The Relative Efficiency of the Existing Fleet

EEDI reference line, bulk carriers ≥400 gt

\[ y = 961.79x^{-0.477} \]

\[ R^2 = 0.9289 \]
<table>
<thead>
<tr>
<th>Ship Type</th>
<th>Basis of Size Range</th>
<th>Size Rating Range (Vessels)</th>
<th>Approximate Number of Ships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Carrier</td>
<td>DWT</td>
<td>200</td>
<td>11,300</td>
</tr>
<tr>
<td>Chemical Tanker</td>
<td>DWT</td>
<td>50</td>
<td>700</td>
</tr>
<tr>
<td>Container</td>
<td>TEU</td>
<td>200</td>
<td>5,300</td>
</tr>
<tr>
<td>Crude &amp; Products Tanker (inc. OBO)</td>
<td>DWT</td>
<td>200</td>
<td>10,300</td>
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<tr>
<td>Cruise</td>
<td>GT</td>
<td>50</td>
<td>600</td>
</tr>
<tr>
<td>General Cargo</td>
<td>DWT</td>
<td>100</td>
<td>11,700</td>
</tr>
<tr>
<td>LNG Tanker</td>
<td>CBM</td>
<td>50</td>
<td>400</td>
</tr>
<tr>
<td>LPG Tanker</td>
<td>CBM</td>
<td>50</td>
<td>1,200</td>
</tr>
<tr>
<td>Refrigerated Cargo Ship</td>
<td>DWT</td>
<td>50</td>
<td>1,000</td>
</tr>
<tr>
<td>Vehicle</td>
<td>DWT</td>
<td>50</td>
<td>800</td>
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</tbody>
</table>
Section 3.1 - Existing Vessel Design Index (EVDI)

<table>
<thead>
<tr>
<th>EVDI Ship Type, Comparison Factor</th>
<th>Bulker, DW*</th>
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</thead>
<tbody>
<tr>
<td>EVDI (grams CO2 per tonne nautical mile)</td>
<td>4.925</td>
</tr>
<tr>
<td>EVDI Size Score</td>
<td>0.993</td>
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</tbody>
</table>

GHG Emissions Rating

- **A**
- **B**
- **C**
- **D**
- **E**
- **F**
- **G**

EVDI Size Score & Group Rating

<table>
<thead>
<tr>
<th>EVDI Size Group</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVDI Size Score</td>
<td>&gt; 2.0</td>
<td>&gt; 1.0</td>
<td>&gt; 0.5</td>
<td>&gt; -0.5</td>
<td>&gt; -1.0</td>
<td>&gt; -2.0</td>
<td>&lt;= -2.0</td>
</tr>
</tbody>
</table>

Top Rated Peers

- GENCO HUNTER (B)
- JIN YANG (B)
- THUNDERBIRD BULKER (B)
- TANAGER BULKER (B)
- TESS BULKER (B)
Age vs Performance
Bulk Carriers 75,000 - 80,000dwt vs Reference Line (1990 – 2012)

GHG Emissions Rating & IMO Reference Line for Bulk Carriers Built 1990 - 2012

Most efficient
Bulk Carriers 75,000 - 80,000dwt vs Reference Line (2007–2012)

GHG Emissions Rating & IMO Reference Line for Bulk Carriers Built 2007 - 2012

Least Efficient
Practical Applications
Sample Ship Owner Fleet
GHG Emissions A - G Rating of In Service Fleet
26 October 2011
Results so far

- Charterers
- Owners
- Terminals
- Finance companies
- Industry
Emissions of the existing fleet already form part of the decision making process.

RightShip A - G Greenhouse Gas Emissions is a statistically valid means of determining relative efficiency of existing tonnage.

Promote market solutions through the logistics chain.

Welcome your feedback and input – www.shippingefficiency.org
Thank You

Email: environment@rightship.com