Safety, Security, & Sustainability of The Maritime Supply Chain

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In a sentence!

RightShip is an innovative organization with a social conscience, best known for our work on maritime safety.

We also have a growing reputation for our work in environmental sustainability.
RightShip

- Independent company formed in 2001
- Ship vetting & risk management
- GHG Emissions Rating & Enviro Score
We support . . .
Today’s Discussion

• **The Freight Mismatch** – OP Cost vs Charter hire

• **Sustainability Expectations** – *Trade Stakeholders vs Shipping*

• **Does Efficiency Pay?** *Big Data & The first movers*

• **What can we do!**
• Vessel Running cost – OPEX + CAPEX

• Rates in recent past

• Is this Sustainable?

Average Capesize demolition age at 21.4 years so far in 2016
Dry bulk cargo market in 'pure survival mode,' Clarksons says

http://www.bloomberg.com/quote/BDIY:IND
Commodity Shipping Costs Tumble Amid Slowing Demand

Baltic Dry Index falls to lowest in three decades

Bloomberg
• COP21 – Dec’15 – 177 nations agreeing to reduce emissions

• Stakeholders Awareness & Societal Demand

• The Corporate & Political Dialogue – Emissions Trading

• Are we on the same page?
GHG to NO\textsubscript{x} & DPM to VOC & Ozone

Lower level Ozone, NO\textsubscript{2} & DPM are directly related to Cancer, breathing difficulty & aggravation of lung infections - NIH

Ozone & NO\textsubscript{x} = http://www.ncbi.nlm.nih.gov/pubmed/7489804
DPM = carcinogenic – see International Agency for Research of Cancer
“It seems clear to me also that climate change is a problem which can no longer be left to a future generation. When it comes to the care of our common home, we are living at a critical moment of history,” the pope said at a welcoming ceremony.
DOES IT PAY TO BE GREEN?
The Shipping Cycle

- Ship Finance
- Shipowners
- Charterers
- Ports
GHG Emissions Rating

- Individual vessel energy efficiency rating
- Based on industry standard (e.g. IMO EEDI)
- Compares vessel design characteristics on like-for-like basis
- Applies to all ship types and sizes
- Easy-to-interpret European rating scale

\[
EEDI = \frac{CO_2 \text{ emission}}{\text{transport work}}
\]
Calculating The A-G GHG emissions rating

GHG Emissions Rating – Normal Peer Distribution

- 3σ
- 2σ
- 1σ
0.5σ
0.5σ
1σ
2σ
3σ

- 68%
- 95%

GHG Emissions Rating:

100,000 DWT Bulker

90,000 DWT Bulker

110,000 DWT Bulker

Safety, Security & Sustainability of the Maritime Supply Chain
GHG Emissions rating

- Robust Methodology: DNV GL reviewed
- Easy to use, understand
- Corporate Social Responsibility, transparency
- Reduces CO₂ & associated Emissions
- Cheaper to run: Tyndall research
- Free of charge: www.shippingefficiency.org
40 charterers factor in energy efficiency

- 2+ billion tons of cargo
- 25+% of global shipments
- 26,000 vessel movement per year

7 ship owners publicly endorse GHG emissions rating

Financial Institutions

- ABN Amro, HSH Nordbank, KfW
- Factor vessels’ energy efficiency into underwriting process

Ports incentive programs

- Environmental ratings basis for port fee discounts
- PMV Vancouver, Port Prince Rupert

5 ~ 9 % savings of the Gross Freight Bill!
Tyndall Center Study - Results

**AVERAGE SAVINGS: 5.2% – 8.6%**

Case-by-case assessment
- 247 cases assessed
- 136 cases suitable for comparison

Fuel Consumption and CO₂ Savings
- Majority of individual cases achieved savings
- Charter party key factor:
  - Size / utilization
  - Speed (design speed)
Conclusion

“Explicitly considering fuel efficiency in chartering decisions offers significant fuel, financial, and emissions savings”
Reducing Shipping’s GHG Emissions Requires a Collaborative Approach
PORT PRINCE RUPERT

First years – 2014/2015

- Discounts $113,872/$140,246 to 140/133 vessels
- 116/7/5 calls qualified through RightShip’s C/B/A

GHG Emissions Rating – Environmental Star Score

- Enviro Score 1 / 6 / 33 vessels with 5/4/3 Score
- Access to rating provided free to ports
# A typical PIP

**GREEN WAVE**
Environmental Incentive Program for Vessels

<table>
<thead>
<tr>
<th>GENERAL</th>
<th>SPECIFIC</th>
<th>TIER 1 (10%)</th>
<th>TIER 2 (20%)</th>
<th>TIER 3 (50%)</th>
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</thead>
<tbody>
<tr>
<td>ENVIRONMENTAL PROGRAM</td>
<td>Green Marine</td>
<td>Level 3 GHG AND min Level 2 overall</td>
<td>Level 4 GHG AND min Level 2 overall</td>
<td>Level 5 GHG AND min Level 2 overall</td>
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<tr>
<td>RightShip</td>
<td>GHG B,C OR Environmental 3+ (min GHG D)</td>
<td>GHG B AND Environmental 3+ (min GHG D)</td>
<td>GHG A</td>
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<tr>
<td>Environmental Ship Index (ESI)</td>
<td>Scores 20-30</td>
<td>Scores &gt;30-50</td>
<td>Scores &gt;50</td>
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<tr>
<td>Green Award</td>
<td>Award certificate</td>
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<td>Clean Shipping Index</td>
<td>Score of Yellow</td>
<td>Score of Green</td>
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<tr>
<td>Energy Efficiency Design Index</td>
<td>EEDI 5% better than required</td>
<td>EEDI 10% better than required</td>
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A reputed international flag

<table>
<thead>
<tr>
<th></th>
<th>Apr 2014 – Mar 2015</th>
<th>A Rated Vessels</th>
<th>G Rated Vessels</th>
<th>Full Flag’s Fleet</th>
<th>Global Fleet</th>
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<tbody>
<tr>
<td>Vessels</td>
<td></td>
<td>82</td>
<td>25</td>
<td>2,638</td>
<td>73,874</td>
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<tr>
<td>Inspections</td>
<td></td>
<td>128</td>
<td>50</td>
<td>5,744</td>
<td>75,232</td>
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<td>Detentions</td>
<td></td>
<td>0</td>
<td>1</td>
<td>64</td>
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<tr>
<td>Deficiencies</td>
<td></td>
<td>74</td>
<td>98</td>
<td>8,189</td>
<td>172,401</td>
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<td>Inspections with Deficiencies</td>
<td></td>
<td>31</td>
<td>23</td>
<td>2,435</td>
<td>39,702</td>
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<td>Deficiencies per Inspection</td>
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<td>0.58</td>
<td>1.96</td>
<td>1.43</td>
<td>2.29</td>
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<td>% Inspections with Deficiencies</td>
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<td>24.22%</td>
<td>46.00%</td>
<td>42.39%</td>
<td>52.77%</td>
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<tr>
<td>% Inspections with Detentions</td>
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<td>0%</td>
<td>2.00%</td>
<td>1.11%</td>
<td>2.82%</td>
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The transformative power of computing

- **1960**: Back-office computing
- **1980**: Client–server PC
- **1990**: World Wide Web and e-business
- **2013/14**: Big data, social, mobile and cloud
Big data

"Using it is the hardest part."
What to do with big data?

The core of big data programs is business analytics

Business analytics allow us to analyze the data we are collecting
- Look for anomalies
- Look for trends
- Compare intelligently

Cubing allows us to ‘slice & dice’ our data in multiple ways

Analytics can be linked to forecasting
SUMMARY
Sustainable Vessel Selection Pays
• Maritime Supply Chain - be Safe, Secure & Profitable

• Accelerate industry sustainability - working together

• Opportunity to incentivize energy efficiency

• Environmentally Efficient Ship is a Sustainable Ship!

“Eco Vessels = Healthy / Profitable / Safer Vessels = Lower Risk”
THANK YOU!

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