Prevention First 2012

Finding a green ship in a blue ocean

October 2012

RIGHTSHIP

Agenda

- About RightShip
- The Existing Vessel Design Index
- Age vs. Performance
- Practical application examples

RIGHTSHIP

About Rightship

- Independent company formed in Oct 2001
  - Melbourne, London & Houston
  - 200+ Customers globally
- Ship Vetting & Risk Management
  - Petroleum & Dry Cargo Vetting Service
  - Environmental Rating & CO_2 Benchmarking
- Worldwide dedicated vetting specialists
  - Former serving Masters and Chief Engineers
- Award winning proven system
  - ISO9001 and ISO27001 Certified

DNV Certification Pty Ltd
DNV
Quality Management System
ISO 9001

ISO 27001
DNV
REGISTERED

RIGHTSHIP

Part Two

The Existing Vessel Design Index

RIGHTSHIP

Framing the Opportunity

RIGHTSHIP

EEDI – What is it?

$$\frac{\left(\prod_{j=1}^{M} f_j\right)\left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)}\right) + \left(P_{AE} \cdot C_{FAE} \cdot SFC_{AE} *\right) + \left(\left(\prod_{j=1}^{M} f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEeff(i)}\right) C_{FAE} \cdot SFC_{AE}\right) - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}\right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w}$$

- Energy Efficiency Design Index (EEDI)
- A formula produced by the IMO to calculate the amount of CO_2 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

RIGHTSHIP

EVDI™ – What is it?

$$\frac{\left(\prod_{j=1}^{M} f_j\right)\left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)}\right) + \left(P_{AE} \cdot C_{FAE} \cdot SFC_{AE} *\right) + \left(\left(\prod_{j=1}^{M} f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEeff(i)}\right) C_{FAE} \cdot SFC_{AE}\right) - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME}\right)}{f_i \cdot Capacity \cdot V_{ref} \cdot f_w}$$

- Existing Vessel Design Index (EVDI™)
- This formula produces the amount of CO_2 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

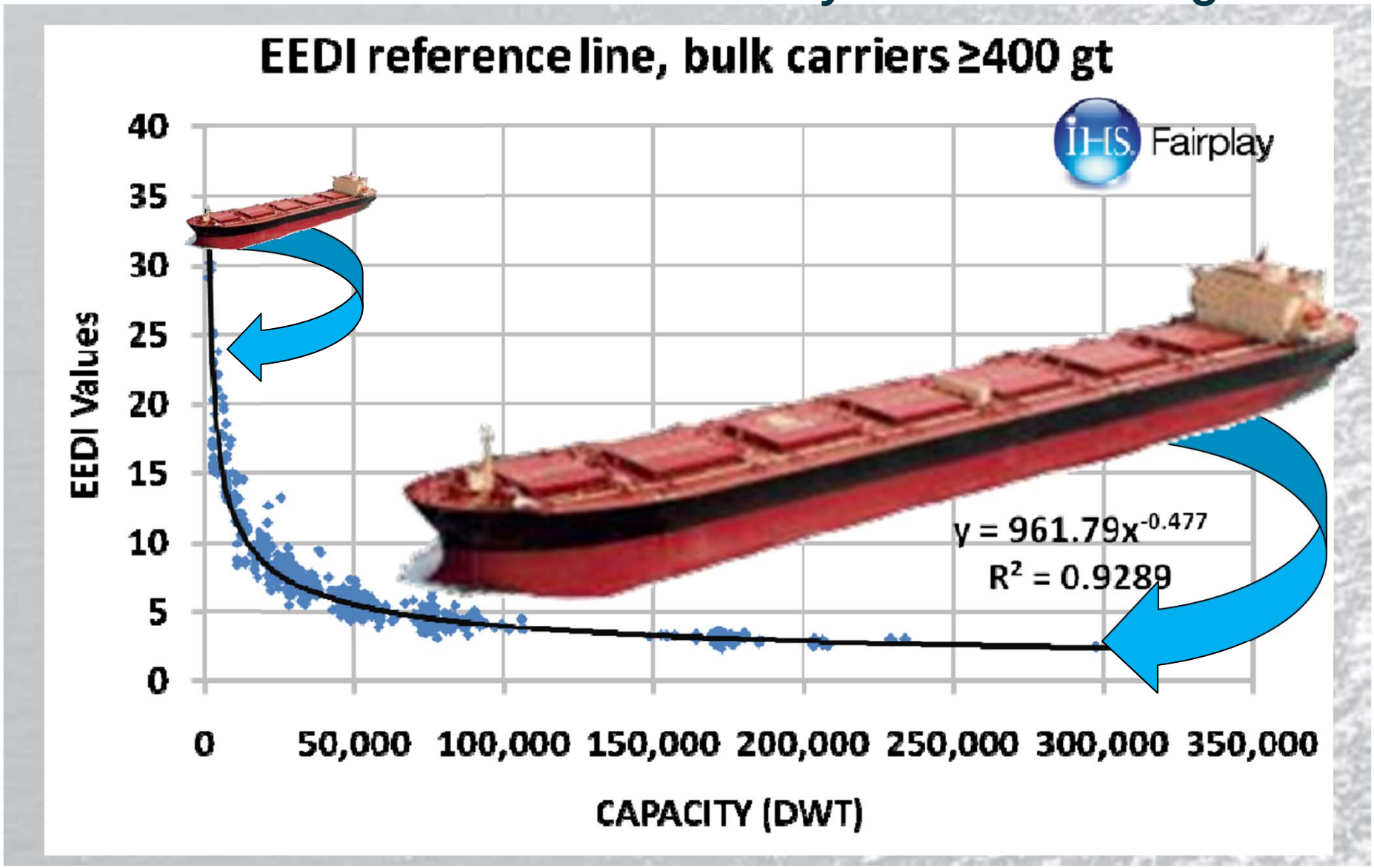
RIGHTSHIP

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)

RIGHTSHIP

The Relative Efficiency of the Existing Fleet



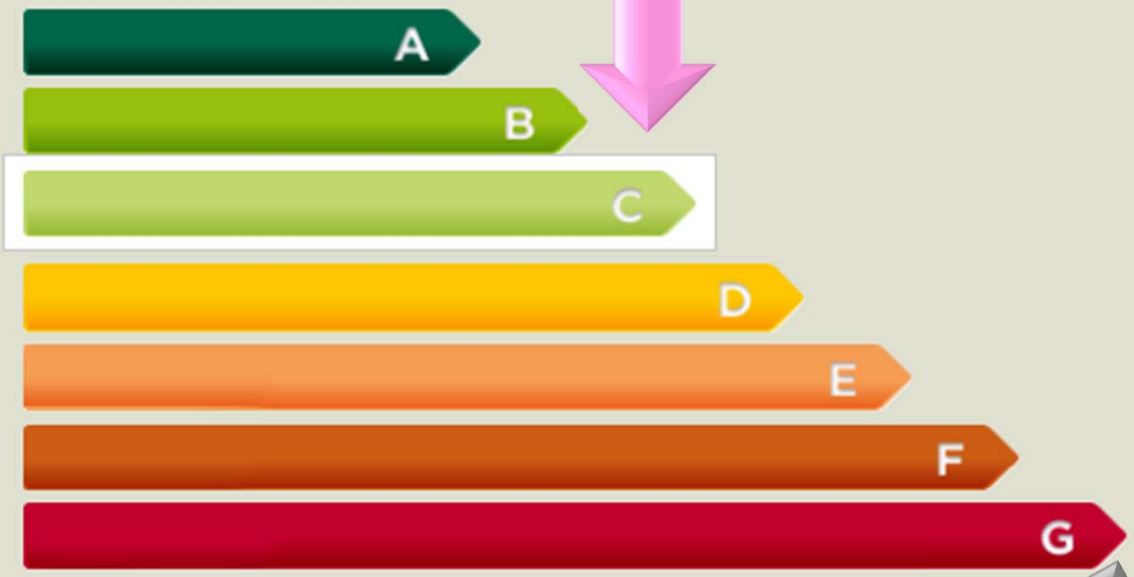
RIGHTSHIP

Basis of Comparison

Ship Type	Basis of Size Range	Size Rating Range (Vessels)	Approximate Number of Ships
Bulk Carrier	DWT	200	11,300
Chemical Tanker	DWT	50	700
Container	TEU	200	5,300
Crude & Products Tanker (inc. OBO)	DWT	200	10,300
Cruise	GT	50	600
General Cargo	DWT	100	11,700
LNG Tanker	CBM	50	400
LPG Tanker	CBM	50	1,200
Refrigerated Cargo Ship	DWT	50	1,000
Vehicle	DWT	50	800

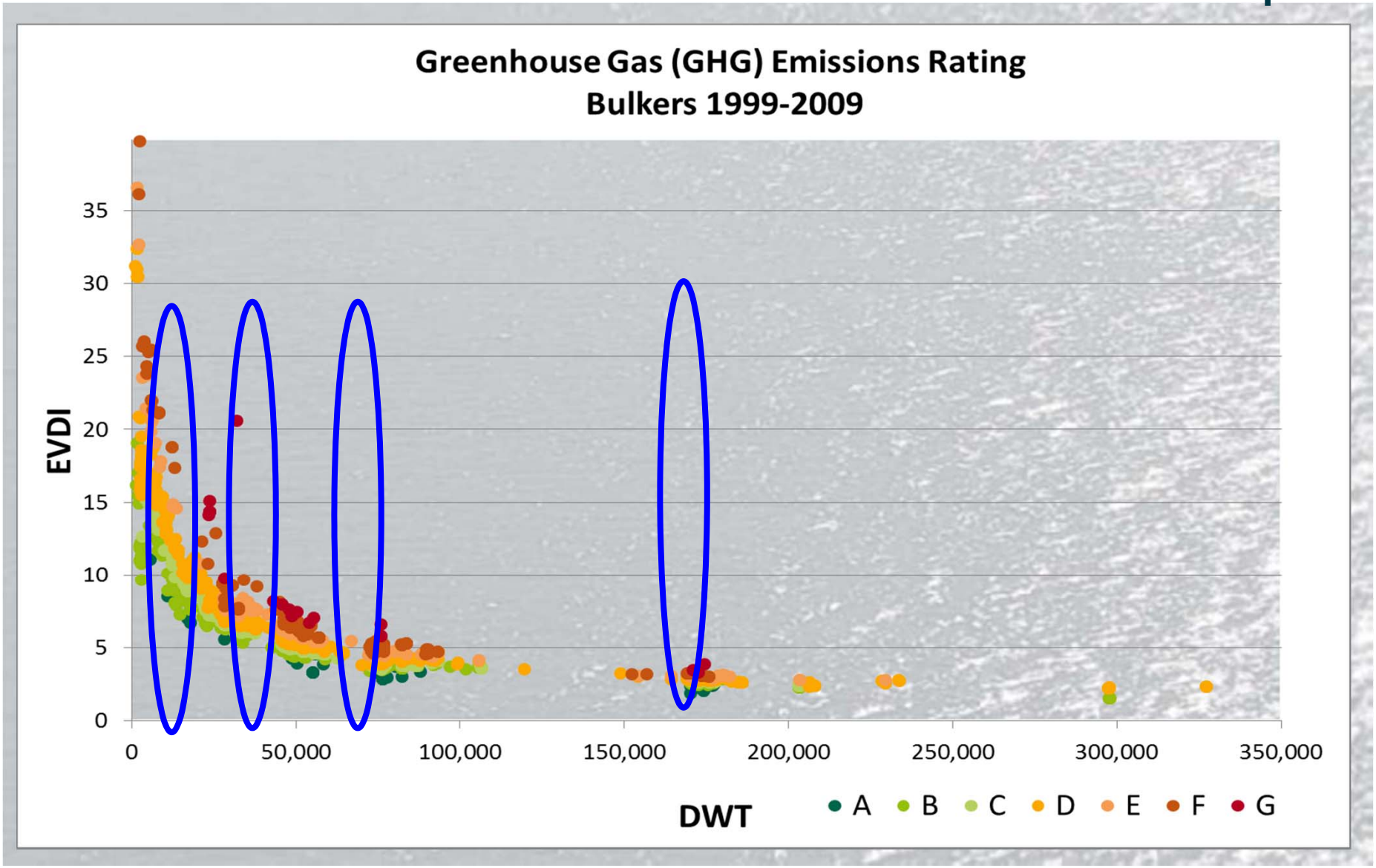
RIGHTSHIP

Let's Compare

Section 3.1 - Existing Vessel Design Index (EVDI)	
EVDI Ship Type, Comparison Factor	Bulker, DWT
EVDI (grams CO2 per tonne nautical mile)	4.925
EVDI Size Score	0.993
GHG Emissions Rating	
EVDI Size Score & Group Rating	EVDI Size Group: A | B | C | D | E | F | G EVDI Size Score: > 2.0 | > 1.0 | > 0.5 | > -0.5 | > -1.0 | > -2.0 | <= -2.0
Top Rated Peers	GENCO HUNTER (B) JIN YANG (B) THUNDERBIRD BULKER (B) TANAGER BULKER (B) TESS BULKER (B)

RIGHTSHIP

Let's Compare



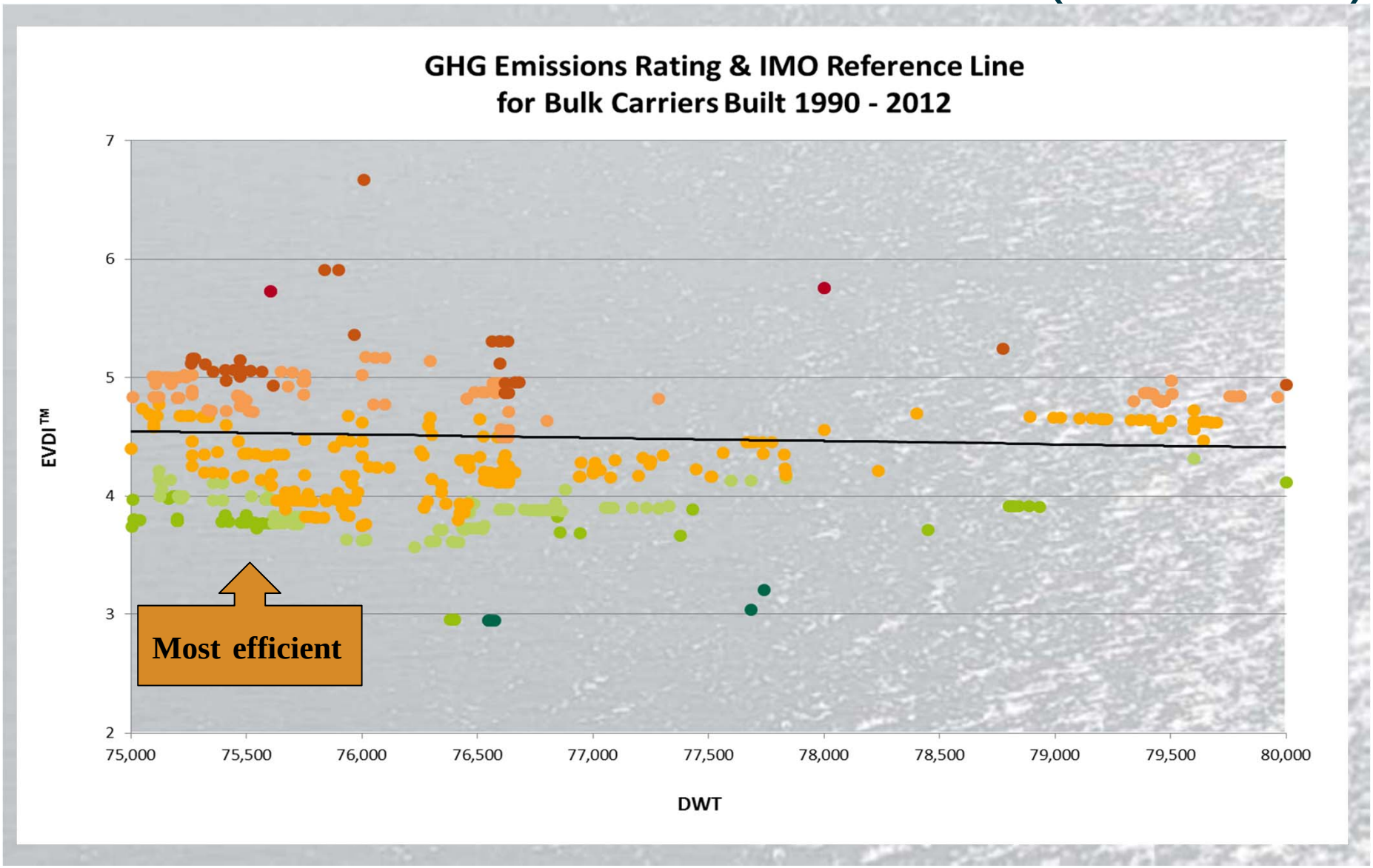
RIGHTSHIP

Part Three

Age vs Performance

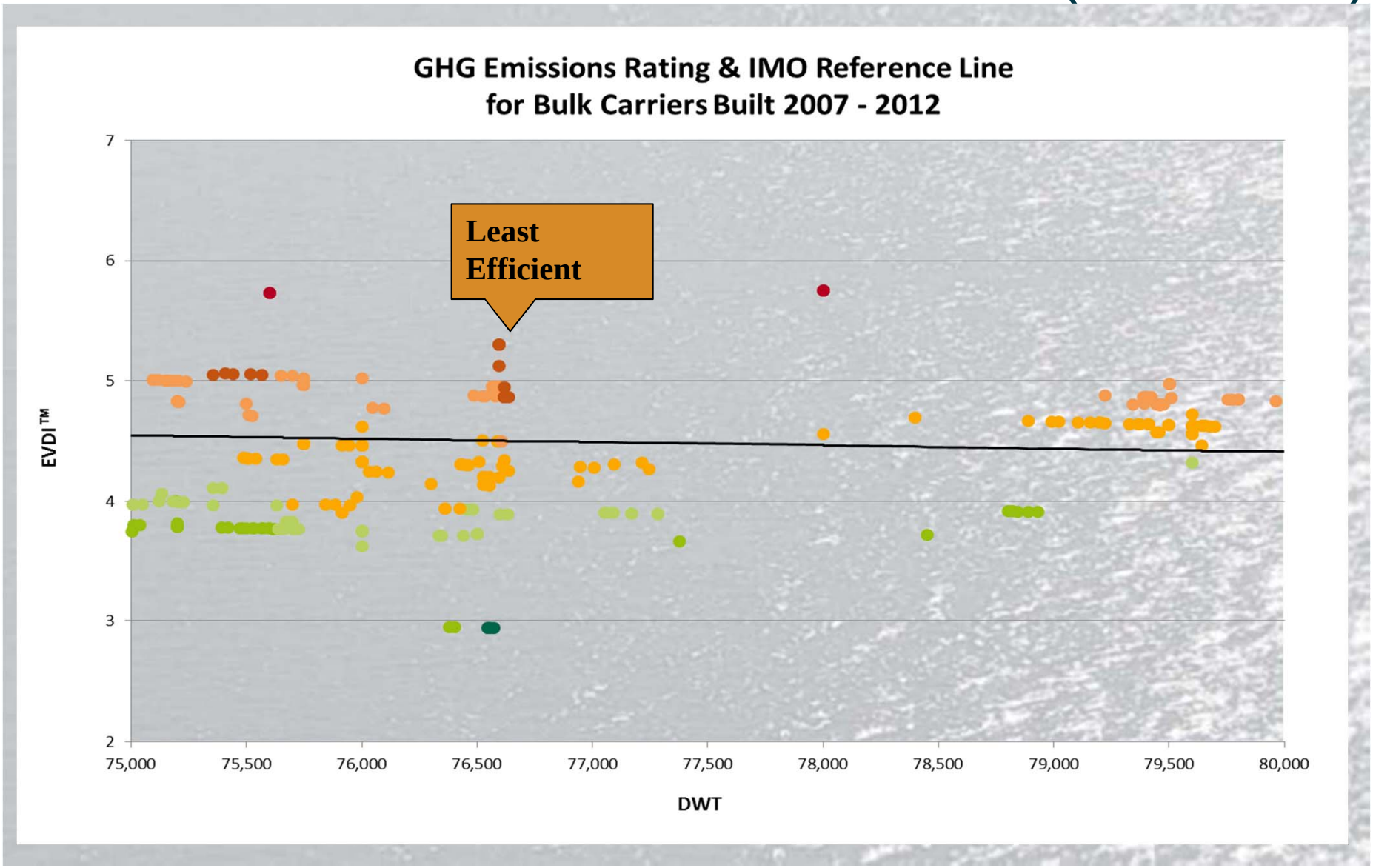
RIGHTSHIP

Bulk Carriers 75,000 - 80,000dwt vs Reference Line (1990 – 2012)



RIGHTSHIP

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



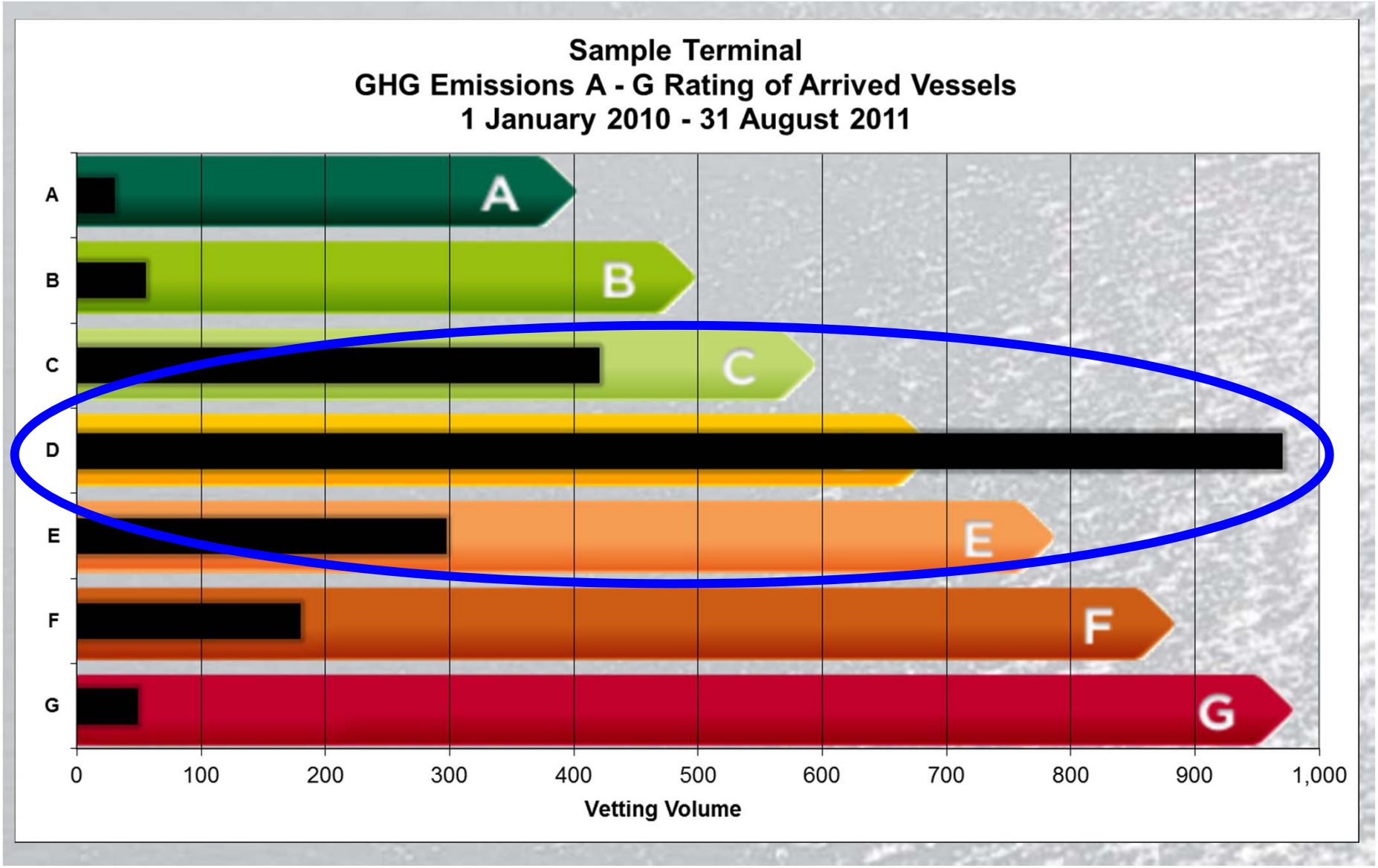
RIGHTSHIP

Part Four

Practical Applications

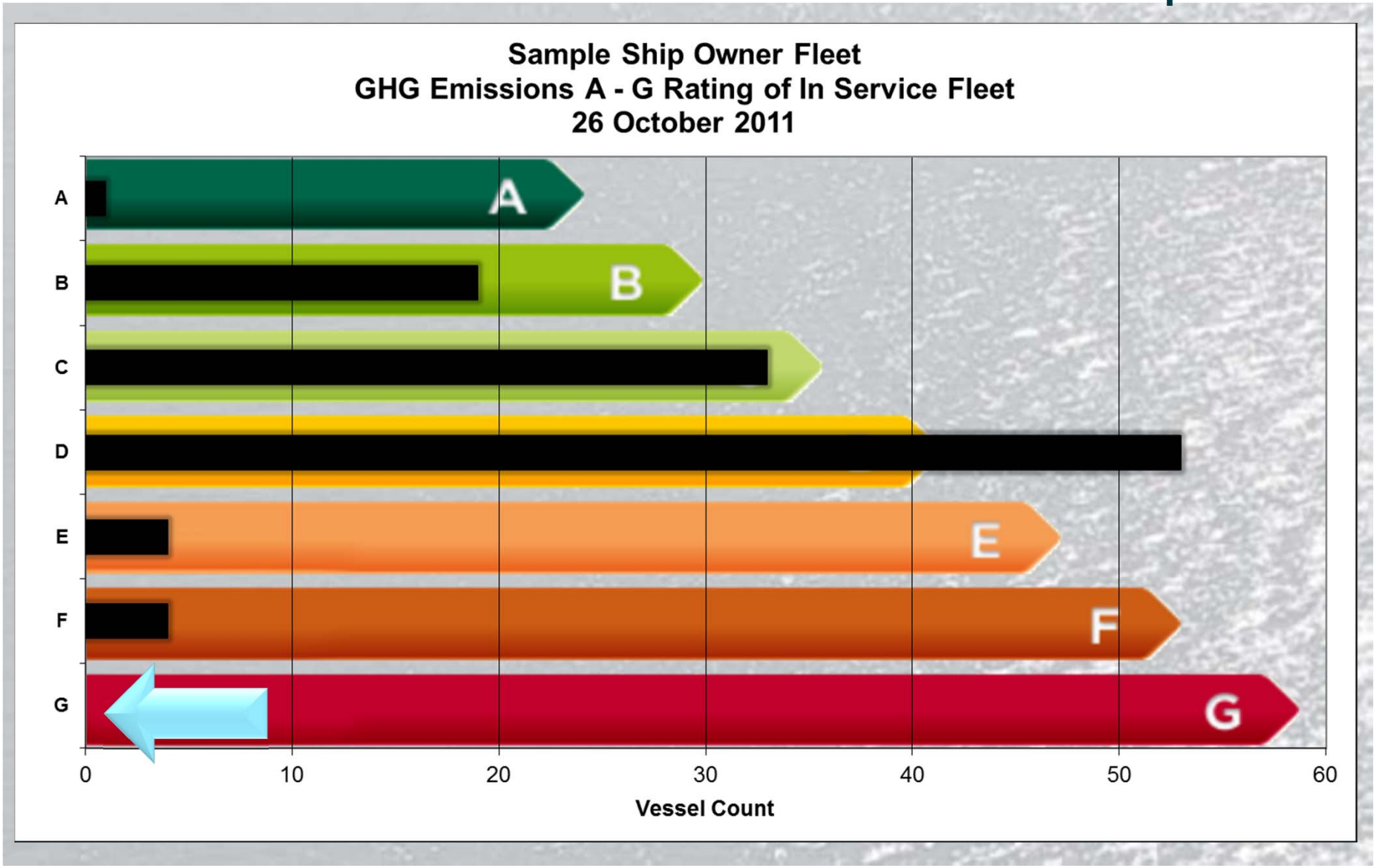
RIGHTSHIP

For the Terminal



RIGHTSHIP

For the Ship Owner



RIGHTSHIP

Results so far

- Charterers
- Owners
- Terminals
- Finance companies
- Industry

RIGHTSHIP

Part Six

Conclusions

- 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

RIGHTSHIP

Thank You

Email: environment@rightship.com