<table>
<thead>
<tr>
<th>1850</th>
<th>1900</th>
<th>1950</th>
<th>2000</th>
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**Life After COVID-19**

**Ship & Bunker Webinar**
26 May 2020

Robin Meech
Marine and Energy Consulting Limited
The impact of Covid will be long lasting

- Poorer
- More risk adverse
- Seek greater flexibility
- Reduced international cooperation
- Improving the environment will be perceived as more costly
Covid Economic Disaster
- Reduced Economic Growth
- Reduced Credit Avails

Less Freight Moving

Lower Freight Rates

Suppressed Bunker Demand

Owners
- Poor financials
- Less degrees of freedom
- Less financially secure
- Adopting short-termism
- Even more price/cost conscious
- Reduced focus on environment

Increased Credit Risks

Reduced New Builds

Reduced Speculative Investment

Consolidation of Owners

Slowed De-Carbonisation

Consolidation of Suppliers

Slowed EGCS Uptake

Oil Price War

Lower Oil Price

Lower Margins

Lower Sulphur Premium

More Competitive Market

Reduced New Builds

More Competitive Market

Slowed De-Carbonisation

Consolidation of Suppliers

Slowed EGCS Uptake

Reduced Speculative Investment
Covid has accelerated de-Globalisation

- Trade tariffs
- Withdraw/end of military treaties
- China increased focus on national advantage
- US withdrawal from Paris Climate Agreement
- Cease funding of WHO
- Lack of a global response to Covid
- Reduced global connectivity and travel

Retarding growth in international trade

Decreasing international cooperation possibly including confirmation and implementation of IMO’s de-carbonisation plans
Environmental Impacts of Covid

- We’ve seen what clean air looks like
  - Let’s keep it like this
  - We don't have to work so hard to reduce future emissions

- Longer term reductions in
  - PAX land, sea and air
  - Overhead costs
  - Flexibility in manual operations

- Near term government actions are crucial
  - Immediate focus on re-building the economy
  - Deflecting attention from environmental issues
  - CO₂ emissions will continue to grow but more slowly
Covid was unforeseen and is devastating

Global Warming is foreseen
But will be the greatest disaster ever
If we don’t act now
# How will we decarbonise

<table>
<thead>
<tr>
<th>Engineered and Operational Efficiencies</th>
<th>New Fuels</th>
<th>Market Based Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Regulations</td>
<td>• Regulatory uncertainty</td>
<td>• Established</td>
</tr>
<tr>
<td>- EEDI</td>
<td></td>
<td>- EU ETS</td>
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<td>- SEEMP</td>
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<td>- China’s National ETS</td>
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<tr>
<td>• Incentivised by fuel savings</td>
<td>• No clear business case yet</td>
<td>• President Biden favours MBM</td>
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<tr>
<td>• Avoiding penalties</td>
<td>• Subsidies</td>
<td></td>
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<tr>
<td>• Pressure on owners</td>
<td>• Pressure on suppliers to provide infrastructure</td>
<td>• Lowest cost path</td>
</tr>
<tr>
<td>• Limited impact</td>
<td>• Pressure on owners to build new types of ships</td>
<td>• Incentivises innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Renewables and carbon capture developed globally</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduced costs on owners and suppliers</td>
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<tr>
<td></td>
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<td>• Can achieve zero-carbon</td>
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</table>
Sources of carbon credits

Marine market will always be ‘short’ – So where do the extra credits come from?

- Purchased by ship owners who can not meet their emission targets
- Generated by Shipowners
- Technical Advances
- New Fuels
- Air Lubrication System
- Generated by Carbon Off-set Projects
  - Direct Projects
  - Carbon capture

Global emissions reduced at lowest cost
Demand for conventional bunkers – million tons

- A 7% decrease this year
- Five years before tonnage reaches last year’s levels
- Slow global economic recovery
- Ton mile growth slower than the economic recovery
- Introduction of low carbon fuels delayed
In summary

- Economic recovery will take at least three years
- International cooperation will deteriorate
- Growth in global trade will plateau
- Bunker demand will take five years to recover
- Credit will be scarce but remain cheap
- Continuing consolidation of owners and suppliers
- Greater focus on Market Based Measures
- Improving the environment will be temporarily slowed
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