Decarbonisation in the shipping business: future fuel options and their implications for the storage sector

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About Channoil Energy

At the forefront of the global oil and gas advisory industry for over 20 years. Extensive coverage of Europe, Middle East and Africa.

About us:

- We consult for countries, governments, institutions and companies.
- All aspects of mid and downstream oil and gas.
- Emerging renewables practice.
- Established industry relationships and strong market contacts.
- Up-to-date knowledge of international and domestic oil and gas markets.
- Senior team members have more than 30 years experience in the downstream oil business.
- Supported by a highly-skilled team of associate consultants.
Today’s discussion

Bunker supply in transition.

• IMO 2020 - what happened?
• Bunker supply today
• The IMO 2050 agenda
• Stricter rules in Europe?
• Alternative fuel options
• Vessel and fuel economics
• Carbon pricing impacts
• Implications for the storage sector
• Conclusions
IMO 2020 - what happened?
The expected tightness failed to materialise.

- Shortages of VLSFO and dependence on Marine gasoil was widely expected.
  - This did not happen because:
    o Refiners did a good job on producing VLSFO.
    o Traders built stocks which supported demand for Q1.

- Covid-19 impacts
  o The collapse in demand for transport fuels reduced refining pressures.
  o This eased the supply - and pricing - of VLSFO.
  o HSFO remained relatively tight, as supply was reduced by refinery run cuts.
  o Many small or simple refineries have announced closure or conversion to bio-refining.
  o The LS/HS differential was depressed throughout 2020.
Bunker supply today

Adequate supply thanks to subdued global demand.

- Demand recovery is strongest in Southeast Asia.
- Europe and North America are still recovering and transport fuel demand remains subdued.
- Continued lack of pressure in the refining system.
- VLSFO demand is supporting smaller straight-run refineries with good access to sweet crudes.
- Closure of small inefficient refineries will be compensated by new sophisticated refineries in the Middle East and Asia.
- Scrubber economics are currently poor.
- We do not expect the LS/HS spread to widen significantly until demand recovers globally.
The IMO 2050 agenda

Decarbonisation of the maritime sector by 50% by 2050.

• The next stage for the sector is to decarbonise:
  o 50% reduction in GHG emissions in the global shipping fleet by 2050.
  o 70% reduction in “carbon intensity” (CO₂ emissions per shipment) by the same time.
  o Against a 2008 baseline.

• A complex set of mandates, targets and guidelines is being developed by the IMO.

• Efficiency targets will drive changes in shipping practice.

• The 50% GHG reduction will not be met by efficiency savings alone: lower carbon fuels will be needed.
Stricter rules in Europe?

EU planned mandates are faster and deeper than IMO 2050.

- The EU intends to include the maritime sector in its emissions trading scheme from 2022.
- This is essentially a CO\textsubscript{2} tax on shipping in EU waters from that date.
- EU target is for a 55% reduction in GHG emissions by 2030.
- The target will be either a regulation when sailing in EU waters, or for any journey with an EU destination.
- The conflict in targets could lead to:
  o Regulatory arbitrage.
  o A change in stance from either IMO or the EU.
  o Other jurisdictions following the EU lead.
  o The EU leading alone.
# Alternative fuel options

LNG and possibly biofuels are the most developed short-term options.

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>LNG</strong></td>
<td>Less carbon intensive than fuel oils and supply infrastructure growing.</td>
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<td><strong>Biofuels</strong></td>
<td>Potential drop-in replacement, but problematic in wet systems - and expensive.</td>
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<tr>
<td><strong>LPG</strong></td>
<td>Already in use as a fuel for LPG carriers, but bunkering infrastructure is limited.</td>
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<tr>
<td><strong>Methanol</strong></td>
<td>Already in use for methanol carriers, but green methanol production does not yet exist.</td>
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<tr>
<td><strong>Ammonia and hydrogen</strong></td>
<td>Both fuels are chemically zero carbon options, but expensive and not yet commercially viable.</td>
</tr>
<tr>
<td><strong>Electric</strong></td>
<td>Only really feasible just for local shipments, not for global supply routes.</td>
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Vessel and fuel economics

Dual fuel vessel investment has definite potential

- LNG is the lowest cost refuelling option available today.
- Current pricing is well above what is needed to remunerate investment in a dual fuel vessel.
- HVO and FAME economics are far worse.
- A high carbon price will be needed to justify HVO or FAME on a standalone basis.

1 Based on prices from Friday 5th March 2021
Implications for bunker fuels

Proliferation of grades

• Bunker demand will continue to grow with world trade growth.
• This will be balanced by increases in vessel efficiency.
• There will be more bunker fuel grades in future.
• HVO and FAME are expensive niche demand grades.
• LNG is increasingly popular as a lower carbon (not zero carbon) option
• Ship-owners are ordering more dual fuel tonnage.
• Transition options need to last as long as the ship.
• Other options (e.g. green ammonia, hydrogen or methanol) are not expected to be economic for 10+ years.
Implications for the storage sector

Complexity and reduced unit throughput

- More grades means more complex storage requirements.
- FAME and HVO may need to be added to the list of liquid fuel options.
- More grades means reduced unit throughput for each grade.
- LNG demand will increase and requires completely new infrastructure.
- None of these grades are the long-term solution.
- But, they will help with the transition
- In 10-15 years, greener fuels should start to be competitive.
- Dual fuel vessels will then look to convert.
- Some new grades have tough HSSE requirements.
Conclusions

Managing complexity and economies of scale

- This is no longer a world where a bunker supplier can simply operate a few tanks.
- Small terminals will be challenged by the complexity of grades.
- Especially so where they rely on import economics for supplying the grades.
- Larger terminals will be able to compete more effectively.
- The EU may well push through their ETS agenda.

Contact us for advice on supply chain optimisation or storage investment options.
THANK YOU!

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