Methanol policy forum

- Background and experience from the two years with methanol onboard the Ro-Pax ferry Stena Germanica.

Washington 2017-06-13
Per Stefenson, Stena Teknik
The Challenge - SECA Sulphur Emission Control Area
What are the alternatives?

<table>
<thead>
<tr>
<th>Four ways</th>
<th>Three new fuel options</th>
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</thead>
<tbody>
<tr>
<td>Marine gas oil with 0.1% sulphur</td>
<td>LNG</td>
</tr>
<tr>
<td>Heavy fuel oil and scrubbers</td>
<td>Methanol</td>
</tr>
<tr>
<td>New fuel</td>
<td>Electricity</td>
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<tr>
<td>Reduce operations and adjust to new situation</td>
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In the end we will see a combination of all.
Why methanol?

• Clean fuel
• Large commodity
• Feedstock is natural gas (Liquefied Natural Gas)
• Green methanol development (Bio- and CO2 captured methanol) leading towards zero vision
• Easy to handle (liquid)
• Economically feasible
Challenges

• Low flashpoint
• Toxic
• Low viscosity
• Corrosive
• Low energy content (half compared with oil)
• Fuel oil price 50% lower than 2014
Stena Germanica conversion of the main propulsion machinery, 4 x Wärtsilä 8ZAL40S Totally 24,000 kW at Remontowa shipyard, Gdansk, March 2015
Methanol conversion
Stena Germanica re-entered in service 26 March 2015
Conclusions after >2000 running hours on methanol:

• Some technical issues with pipe connections due to low viscosity.
• Vibrations in high pressure pipes recalculated and fixed
• Sensitive control and alarm system needed to be fine tuned
• Failing injectors due to under dimensioned spring re-designed

• Conclusion:
  • Methanol works fine as marine fuel
  • Very few technical issues - but they are time consuming
Methanol leads towards the zero vision

- Known technology
- New technology + New Logistics

CO2 emission

- 100%
- 70%

2030

2050
Zero vision fuel

CO₂

H₂O
METHANOL
- AN AWARD WINNING INNOVATION

- Innovation Award, 2015
- GST Ship-owner of the year, 2015
- Pegasus award, 2015
- Outstanding Green Initiative Award, 2015
- The Ship of the Year Award, 2016
- Shippax Eco-Award, 2016

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