LNG – Best fuel of the future
MS Stavangerfjord 10 – 12 April 2018
Who we are @ Fjord Line?

Modern innovative shipping company with a fleet of 4 vessels and one vessel on order.
Trading between Norway, Denmark & Sweden.
All vessels holds a special price 😊 Operation @ 7 scandinavian ports.

**Powered by LNG**

**Ship of the year 2013 - MS Stavangerfjord/MS Bergensfjord**

**Nor Shipping 2013 - MS Stavangerfjord**

**Danish Maritime Fair**

**Ship of the year 2014 - MS Bergensfjord**

**Outstanding ship conversion 2014 - MS Oslofjord**

**Hales Trophy (Blue Ribbon) 1998**
Fastest Atlantic crossing (41,28 knots)
**HSC Fjord Cat**

Powered by MGO

fjordline.com
Distribution costs for bunkering by terminal.

- We were back in 2010 “lucky” to have a liquefaction plant under construction.
- After a period with truck2ship bunkering we finally received permit to bunker with pax onboard.
- Later on (2015) we got a pipeline connecting the production storage tank via pipeline to a semi-automatic bunkering arm at our primary berth in Risavika.
- And in 2015 we got our small scale facility in Hirtshals.
Who else has the possibility to bunker LNG at their primary berth and without shifting berth for bunkering?
Bunker possibilities and costs

- Truck 2 Ship
- Production Terminal 2 Ship
- Satellite Terminal 2 Ship
- Ship 2 Ship
- Investment (CAPEX)
- Operation (OPEX)
- Yearly volume
- Spot or Fixed contract
- Distance from source

And all contracts between suppliers and end users are confidential.
LNG experience (Energy and distribution).

HFO 380

MGO 0.1%

LNG (EUR/MWh)
### LNG vs MGO vs HFO (USD/MWh)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>USD / Ton</th>
<th>MWh / Ton</th>
<th>USD / MWh</th>
<th>Distribution cost</th>
<th>Distribution cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.04.2018 Bunkerworld/TTF LHW LHW USD / Ton USD / MWh USD / MWh</td>
<td></td>
<td></td>
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<tr>
<td>HFO 380</td>
<td>390</td>
<td>11,25</td>
<td>34,67</td>
<td>20 - 50</td>
<td>1,78 - 4,44</td>
<td>36,45 – 39,11</td>
</tr>
<tr>
<td>MGO 0.1%</td>
<td>620</td>
<td>11,86</td>
<td>52,28</td>
<td>20 - 50</td>
<td>1,69 - 4,22</td>
<td>53,97 – 56,5</td>
</tr>
<tr>
<td>LNG</td>
<td>320</td>
<td>13,68</td>
<td>23,40</td>
<td>150 - 200</td>
<td>10,96 - 14,62</td>
<td>34,36 – 44,02</td>
</tr>
</tbody>
</table>

Are the LNG suppliers not good enough To promote the price of LNG to the market ?

More infrastructure and volume the price of distribution cost should drop, but would it ?

\[
\int \frac{d}{dx} = \text{Egg}
\]

\[
\frac{d}{dx} \int \text{Egg} = \text{Chicken}
\]
The money is there also for infrastructure

INEA (TEN-T) - Innovation & Networks Executive Agency
NOx Fund (NHO) - The Confederation of Norwegian Enterprise

Support programmes existing and are available within the EU (INEA)
Support program exists also for domestic trade in Norway (NOx Fund)

Both MS Bergensfjord & MS Stavangerfjord
have received support from EU/TEN-T & the NOx Fund.

LNG Tank & bunker facility Hirtshals have received support from EU/INEA

Co-financed by the European Union
Trans-European Transport Network (TEN-T)