LNG in the Baltic Sea Ports
What is BPO?

- BPO is a business organization
- 40 major ports in the Baltic Sea
- Networking organization
- Focus on promoting sea transport in the Baltic
- Promoting environmental management in the ports
- Contributing to the sustainable development of the BSR
- Facilitating contacts with business partners from all around the world
- EU affairs

Over 800 mln tons cargo annually in Baltic ports
RO-RO & ferry lines in the Baltic Sea (BTJ 2011)
## Baltic ro-ro and ferry market

### Table 13. Ferry fleets of the Baltic operators at the beginning of 2012

<table>
<thead>
<tr>
<th>Operator</th>
<th>Ferries</th>
<th>GT [thou.]</th>
<th>Pax [thou.]</th>
<th>Lane metres [thou.]</th>
<th>Lane performance [thou. km/km per week]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finnlines</td>
<td>14</td>
<td>505.7</td>
<td>4.8</td>
<td>33.4</td>
<td>138.1</td>
</tr>
<tr>
<td>Tallink/ST malta</td>
<td>11</td>
<td>472.2</td>
<td>28.1</td>
<td>12.2</td>
<td>41.7</td>
</tr>
<tr>
<td>Scandlines1</td>
<td>19</td>
<td>349.3</td>
<td>16.7</td>
<td>24.3</td>
<td>68.8</td>
</tr>
<tr>
<td>Stena Line1</td>
<td>10</td>
<td>316.6</td>
<td>13.6</td>
<td>20.2</td>
<td>61.9</td>
</tr>
<tr>
<td>DFDS Seaways</td>
<td>10</td>
<td>272.6</td>
<td>7.0</td>
<td>20.0</td>
<td>61.9</td>
</tr>
<tr>
<td>Color Line</td>
<td>6</td>
<td>250.1</td>
<td>12.5</td>
<td>7.5</td>
<td>31.3</td>
</tr>
<tr>
<td>Viking Line1</td>
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<td>195.7</td>
<td>13.9</td>
<td>5.4</td>
<td>17.4</td>
</tr>
<tr>
<td>TT-Line</td>
<td>6</td>
<td>179.4</td>
<td>2.9</td>
<td>14.5</td>
<td>44.6</td>
</tr>
<tr>
<td>Unity Line</td>
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<td>139.8</td>
<td>3.4</td>
<td>10.4</td>
<td>25.7</td>
</tr>
<tr>
<td>Destination Gotland</td>
<td>4</td>
<td>71.7</td>
<td>4.5</td>
<td>3.5</td>
<td>10.1</td>
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<tr>
<td>St. Peter Line</td>
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<td>71.7</td>
<td>4.3</td>
<td>2.1</td>
<td>5.6</td>
</tr>
<tr>
<td>Port ferries</td>
<td>3</td>
<td>67.0</td>
<td>3.1</td>
<td>3.7</td>
<td>10.0</td>
</tr>
<tr>
<td>Faerger</td>
<td>7</td>
<td>53.9</td>
<td>5.9</td>
<td>2.9</td>
<td>7.4</td>
</tr>
<tr>
<td>Ecker1</td>
<td>3</td>
<td>47.7</td>
<td>3.6</td>
<td>2.6</td>
<td>5.1</td>
</tr>
<tr>
<td>SmydL Line</td>
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<td>36.0</td>
<td>1.5</td>
<td>1.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Fjord Line</td>
<td>2</td>
<td>22.4</td>
<td>1.6</td>
<td>0.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Kattegat-ruten1</td>
<td>2</td>
<td>20.6</td>
<td>1.5</td>
<td>1.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Mols-Linien</td>
<td>3</td>
<td>13.6</td>
<td>1.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RG Line</td>
<td>1</td>
<td>10.3</td>
<td>0.3</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>117</strong></td>
<td><strong>3,086.3</strong></td>
<td><strong>130.9</strong></td>
<td><strong>167.3</strong></td>
<td><strong>521.2</strong></td>
</tr>
</tbody>
</table>

### Table 14. Ro-ro fleets of the Baltic operators at the beginning of 2012

<table>
<thead>
<tr>
<th>Operator</th>
<th>Ships</th>
<th>GT [thou.]</th>
<th>Lane metres [thou.]</th>
<th>Lane performance [thou. km/km per week]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFDS Seaways</td>
<td>12</td>
<td>335.9</td>
<td>42.9</td>
<td>155.2</td>
</tr>
<tr>
<td>Transfer Line1</td>
<td>11</td>
<td>232.8</td>
<td>26.1</td>
<td>98.4</td>
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<tr>
<td>Finnlines</td>
<td>11</td>
<td>223.3</td>
<td>28.7</td>
<td>113.2</td>
</tr>
<tr>
<td>UECC</td>
<td>5</td>
<td>112.5</td>
<td>2.6</td>
<td>10.01</td>
</tr>
<tr>
<td>Transatlantic</td>
<td>4</td>
<td>88.0</td>
<td>9.5</td>
<td>33.1</td>
</tr>
<tr>
<td>CLD N</td>
<td>4</td>
<td>86.4</td>
<td>9.2</td>
<td>34.0</td>
</tr>
<tr>
<td>UPM Seaways</td>
<td>7</td>
<td>74.3</td>
<td>10.6</td>
<td>30.6</td>
</tr>
<tr>
<td>SCA Transforest</td>
<td>3</td>
<td>60.5</td>
<td>6.3</td>
<td>21.8</td>
</tr>
<tr>
<td>North Sea Ro-Ro</td>
<td>2</td>
<td>46.5</td>
<td>5.2</td>
<td>19.1</td>
</tr>
<tr>
<td>Scandlines2</td>
<td>2</td>
<td>41.0</td>
<td>4.3</td>
<td>16.6</td>
</tr>
<tr>
<td>Anship</td>
<td>2</td>
<td>40.8</td>
<td>3.5</td>
<td>14.8</td>
</tr>
<tr>
<td>Swedish Orient Line</td>
<td>2</td>
<td>40.5</td>
<td>4.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Tallink/ST malta2</td>
<td>2</td>
<td>30.9</td>
<td>3.0</td>
<td>8.7</td>
</tr>
<tr>
<td>Power Line</td>
<td>1</td>
<td>21.2</td>
<td>2.2</td>
<td>10.2</td>
</tr>
<tr>
<td>Mann Lines</td>
<td>1</td>
<td>18.2</td>
<td>2.3</td>
<td>10.2</td>
</tr>
<tr>
<td>Sea Cargo</td>
<td>2</td>
<td>16.7</td>
<td>2.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Lillgards</td>
<td>1</td>
<td>6.0</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>TT-Line2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>72</strong></td>
<td><strong>1,475.5</strong></td>
<td><strong>164.2</strong></td>
<td><strong>549.3</strong></td>
</tr>
</tbody>
</table>

**Remarks:**
1. GT includes two ships of Southern Route (Bilbao-Tilbury-Zeebrugge)
2. Both ships officially of ro-pax class
3. Vessel from Travemünde service
4. Estimation
Container lines in the Baltic Sea (BTJ 2011)
## Baltic container market

Container shipping operators on the Baltic in May 2012

<table>
<thead>
<tr>
<th>No.</th>
<th>Shipping operator</th>
<th>Number</th>
<th>Capacity</th>
<th>Ave. Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unifeeder</td>
<td>39</td>
<td>38111</td>
<td>977</td>
</tr>
<tr>
<td>2</td>
<td>MSC</td>
<td>20</td>
<td>37394</td>
<td>1870</td>
</tr>
<tr>
<td>3</td>
<td>Team Lines</td>
<td>15</td>
<td>14574</td>
<td>972</td>
</tr>
<tr>
<td>4</td>
<td>CMA CGM</td>
<td>11</td>
<td>13030</td>
<td>1185</td>
</tr>
<tr>
<td>5</td>
<td>Maersk Line (feeder service)</td>
<td>8</td>
<td>12687</td>
<td>1586</td>
</tr>
<tr>
<td>6</td>
<td>FESCO-ESF</td>
<td>7</td>
<td>7238</td>
<td>1034</td>
</tr>
<tr>
<td>7</td>
<td>Containerships</td>
<td>8</td>
<td>7014</td>
<td>877</td>
</tr>
<tr>
<td>8</td>
<td>OOCL</td>
<td>6</td>
<td>6132</td>
<td>1022</td>
</tr>
<tr>
<td>9</td>
<td>Hapag Lloyd</td>
<td>3</td>
<td>3769</td>
<td>1256</td>
</tr>
<tr>
<td>10</td>
<td>Eimskip</td>
<td>3</td>
<td>3612</td>
<td>1204</td>
</tr>
<tr>
<td>11</td>
<td>Delta Shipping Line</td>
<td>4</td>
<td>3472</td>
<td>868</td>
</tr>
<tr>
<td>12</td>
<td>Seaconnect</td>
<td>3</td>
<td>2169</td>
<td>723</td>
</tr>
<tr>
<td>13</td>
<td>Transatlantic</td>
<td>6</td>
<td>2086</td>
<td>348</td>
</tr>
<tr>
<td>14</td>
<td>Swan Container Line</td>
<td>2</td>
<td>1876</td>
<td>938</td>
</tr>
<tr>
<td>15</td>
<td>Samskip</td>
<td>2</td>
<td>1818</td>
<td>909</td>
</tr>
<tr>
<td>16</td>
<td>MC Andrews</td>
<td>3</td>
<td>1527</td>
<td>509</td>
</tr>
<tr>
<td>17</td>
<td>K-Line</td>
<td>2</td>
<td>1362</td>
<td>681</td>
</tr>
<tr>
<td>18</td>
<td>Merilinja Oy</td>
<td>2</td>
<td>1358</td>
<td>679</td>
</tr>
<tr>
<td>19</td>
<td>Mann lines</td>
<td>2</td>
<td>1316</td>
<td>658</td>
</tr>
<tr>
<td>20</td>
<td>Tschudi Lines</td>
<td>2</td>
<td>1206</td>
<td>603</td>
</tr>
<tr>
<td>21</td>
<td>Green Feeder</td>
<td>2</td>
<td>1016</td>
<td>508</td>
</tr>
<tr>
<td>22</td>
<td>Oy Hacklin Ltd</td>
<td>2</td>
<td>855</td>
<td>428</td>
</tr>
<tr>
<td>23</td>
<td>SCA Transforest</td>
<td>1</td>
<td>809</td>
<td>809</td>
</tr>
</tbody>
</table>


LNG in particular has the potential to be an environmentally friendly and viable alternative to marine fuel oil and marine gas oil, particularly at the beginning for short sea shipping.

By Mr Siim Kallas, Vice-President of the European Commission
Therefore, BPO has initiated development of LNG bunkering infrastructure in the Baltic ports and on 23 of September 2011 the project LNG in the Baltic Sea Ports was delivered to TEN-T EA for co-financing by EC within TEN-T/ MoS Program 2011.
Project: LNG in the Baltic Sea Ports:

7 ports around the Baltic Sea plus supporting ports supported by many industry organizations (ship-owners, national ports organizations, ESPO)

- Focus on real investment
- Co-ordinated approach
- First phase: pre-investment studies
- Around 4 mln. Euro
- Officially started September 2012
- Completion date: end of 2014
Objectives:

Development of the infrastructure in the ports for LNG bunkering, thus making possible to use LNG as fuel for the shipping industry in the future. This will decrease the emission to the atmosphere and make sea transport more environmental friendly.

The project will result in jointly developed operational ships bunkering installations in ports that can serve as objects of reference to other ports in the Baltic Sea region and to other regions in EU.
The following activities are planned:

- **Activity 1 - 7**: LNG pre-investment studies in participating ports

- **Activity 8**: Harmonization and Stakeholders Platform
Activity 1  
LNG in port of Aarhus

Subactivity 1.1  
Feasibility study

Subactivity 1.2  
Approval from the authorities

Subactivity 1.3  
Design Phase

Activity 2  
LNG in ports of Copenhagen-Malmö

Subactivity 2.1  
Mapping of shipping activities and volume estimations

Subactivity 2.2  
Localisation study

Subactivity 2.3  
Cost and market analysis study

Activity 3  
LNG in port of Helsingborg

Subactivity 3.1  
Market, sourcing, location and stakeholder analysis

Subactivity 3.2  
Risk assessment project and check of process for permits

Activity 4  
LNG in port of Helsinki

Subactivity 4.1  
Feasibility study

Activity 5  
LNG in port of Riga

Subactivity 5.1  
Feasibility study

Subactivity 5.2  
Environmental impact assessment procedure

Subactivity 5.3  
Technical design of LNG bunkering terminal

Activity 6  
LNG in port of Stockholm

Subactivity 6.1  
Feasibility study

Subactivity 6.2  
Bunkering arrangements of LNG in Stadsgården area

Subactivity 6.3  
Safety manual bunkering and use of LNG

Activity 7  
LNG in port of Tallinn

Subactivity 7.1  
Feasibility study with CBA

Subactivity 7.2  
General plan for LNG facilities in Muuga Harbour

Activity 8  
LNG in port of Turku

Activity 8.1  
Bunkering arr. of LNG in passenger harbor for Viking Line

Activity 8.2  
Area arrangements caused by LNG terminal in Pansio harbor

Activity 8.3  
Safety manual for bunkering and use of LNG at port areas

Activity 8.4  
Project study for all port sections (excluding Stadsgården)

Activity 8.5  
Project- and investments plan

Activity 8.6  
Tender documents for constructions phase

Activity 8.7  
Tender documents for constructions phase

Activity 9  
Harmonisation and Stakeholder Platform

Co-financed by the European Union  
Trans-European Transport Network (TEN-T)
Activity 5
LNG in port of Riga

Subactivity 5.1
Feasibility study

Subactivity 5.2
Environmental impact assessment procedure

Subactivity 5.3
Technical design of LNG bunkering terminal

Activity 6
LNG in port of Stockholm

Subactivity 6.1
Feasibility study

Subactivity 6.2
Bunkering arrangements of LNG in Stadsgården

Subactivity 6.3
Safety manual bunkering and use of LNG

Subactivity 6.4
Project study for all port sections

Subactivity 6.5
Project- and investments plan

Activity 7
LNG in port of Tallinn

Subactivity 7.1
Feasibility study with CBA

Subactivity 7.2
General plan for LNG facilities in Muuga Harbour

Subactivity 7.3
Environmental Impact Assessment reports

Subactivity 7.4
Layout options and basic projects report

Subactivity 7.5
Tender documents for constructions phase

Activity 8
LNG in port of Turku

Activity 8.1
Bunkering arr. of LNG in passenger harbor for Viking Line

Activity 8.2
Area arrangements caused by LNG terminal in Pansio harbor

Activity 8.3
Safety manual for bunkering and use of LNG at port areas

Activity 9
Harmonisation and Stakeholder Platform

Co-financed by the European Union
Trans-European Transport Network (TEN-T)
Activity 8: Harmonization and Stakeholders Platform

Harmonization will be secured among the pre-investment studies in the different ports and the Stakeholder platform will be initiated to gather the key actors around the same table from the Baltic but also form outside the Baltic regions securing the dialogue process and dissemination of the project results.

LNG Guidebook (how to develop LNG infrastructure in the sea port). The LNG Guidebook would be used by other ports (that are not project partners) in the Baltic Sea region but also in other EU regions after project is completed.
First LNG fueled ship to be at the service in January 2013 between Stockholm and Turku

M/S Viking Grace

Construction work started at the STX Finland shipyard in Turku September 28, 2011.

The Viking Grace is the first large passenger vessel in the world fuelled by liquefied natural gas (LNG).

http://www.vikinggrace.com/
First LNG fueled ship to be at the service in January 2013 between Stockholm and Turku

Turku, September 2012
First LNG fueled ship to be at the service in January 2013 between Stockholm and Turku - bunkering

- Pilot project / prototype
- Conversion to the world's first dedicated LNG bunker vessel
- Hull and engine/propulsion system kept
- Not need shore gas terminal for the operating vessel
- Short turnaround in terminal

Source: Fiskerstrand BLRT AS

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

Baltic ports go for LNG to offer the LNG bunkering possibilities for ship-owners in the future

LNG is a very good way forward ... but will not solve the problem until 2015

Ports (authorities) are partly financing the development and they are facilitators of the process

Other partners are necessary in the development of the LNG bunkering facilities
Summing up:

There have been already some business initiatives in LNG distribution/bunkering infrastructure in ports (Tallinn, Turku, Gothenburg, Swinoujscie).

and

Project LNG in the Baltic Sea Ports facilitates the business process in the BSR
Thank you

Bogdan Ołdakowski
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