LNG bunkering experience from the Baltic ports

3 April 2019, Shanghai
Workshop at Shanghai Maritime University (SMU)
BPO – who we are?

BPO – Baltic Ports Organization

established
October 10, 1991
Copenhagen

nearly 50 members
major ports in the 9 countries

registered in Estonia
Port of Tallinn headquarter

office in Gdynia
Poland
BPO – who we are?

BPO’s mission

The BPO’s mission is to contribute to sustainable development of maritime transport and the port industry in the Baltic Sea Region, thereby strengthening its global competitiveness.
BPO Tag Map

What we deal with?

Russian Economy  Efficiency  SECA  NECA  OPS
TEN-T/CEF  Comprehensive Ports
Green Ports  Sewage
Cooperation  NECA
Core Ports  Synergies  Investments
Waste From Scrubbers  LNG
Bigger Ships
Port Package
Ports 4.0  Projects  GHG
Baltic port market

2010 (mln t)  814.1
2017 (mln t)  909.3
2017/2010 (%)  +11.7

Record 2017 > 900 mln t.
BPO policy

The Baltic Sea as a model region for green ports and maritime transport

Adopted at BPO General Assembly, Helsinki, September 2016
Regulating maritime transport in the Baltic Sea Region — Part II
Compliance with SECA

BPO Report: EU Sulphur Directive

One year after its entry into force
June 2016
Compliance with SECA

Fleet operating exclusively or mostly within SECA

- 600* bulk carriers
- 300* tankers
- 240 ferries
- 237 container ships
- 147 ro-ro vessels

Range of operation:
Ferries, ro-ro, container ships – exclusively in SECA
Bulk carrier and tankers – exclusively or mostly in SECA

*Numbers may vary due to different sources and data collection methods.
Compliance with SECA

Technology applied in order to meet sulphur regulations by ships operators in short sea shipping in European SECA.

<table>
<thead>
<tr>
<th>Type</th>
<th>MGO</th>
<th>HFO+scrubber</th>
<th>LNG</th>
<th>Other (methanol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferries</td>
<td>81.0%</td>
<td>11.6%</td>
<td>7.0%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Ro-ro</td>
<td>70.9%</td>
<td>27.8%</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>Container ships</td>
<td>97.9%</td>
<td></td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Bulk carriers</td>
<td>99.2%</td>
<td></td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Tankers</td>
<td>98.8%</td>
<td></td>
<td>0.9%</td>
<td></td>
</tr>
</tbody>
</table>
## Compliance with SECA

<table>
<thead>
<tr>
<th>Shipowner</th>
<th>Number of ships equipped with scrubbers</th>
<th>% of total ship-owners ro-ro and ferry fleet operating within SECA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFDS</td>
<td>21</td>
<td>60.0%</td>
</tr>
<tr>
<td>Finnlines2</td>
<td>15</td>
<td>68.2%</td>
</tr>
<tr>
<td>Brittany Ferries</td>
<td>6</td>
<td>85.7%</td>
</tr>
<tr>
<td>Transfennica</td>
<td>6</td>
<td>60.0%</td>
</tr>
<tr>
<td>Color Line</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>KESS</td>
<td>4</td>
<td>40.0%</td>
</tr>
<tr>
<td>Scandlines</td>
<td>4</td>
<td>33.3%</td>
</tr>
<tr>
<td>Condor Ferries</td>
<td>2</td>
<td>50.0%</td>
</tr>
<tr>
<td>Wagenborg Shipping Sweden</td>
<td>2</td>
<td>100.0%</td>
</tr>
<tr>
<td>Stena Line</td>
<td>2</td>
<td>8.0%</td>
</tr>
<tr>
<td>Bore/P&amp;O Ferries</td>
<td>1</td>
<td>7.1%</td>
</tr>
<tr>
<td>SOL Continent Line</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>TT-Line</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69</strong></td>
<td><strong>43.1%</strong></td>
</tr>
</tbody>
</table>

Number of ships operating in the North Sea, Baltic Sea and English Channel that has installed scrubbers (up to June 2016)
Number of LNG fueled vessels grows

Driving forces:

- Regulations and EU policy (SECA, NECA, TEN-T, CEF)
- Technology development
- LNG infrastructure and LNG availability
LNG in the Baltic Sea Ports project I

BPO initiated two EU founded projects with 11 ports involved

Pre-investment studies such as EIA, feasibility analyses for LNG terminals or bunkering vessels, project designs, regional market studies, safety manuals, etc.

Stakeholder platform that facilitated discussions among port authorities, shipowners, gas infrastructure providers, energy traders and bunkering companies.

LNG in the Baltic Sea Ports project II

BPO extended the network with 5 other ports

Similar scope

The Global Project is focused on the harmonized pre-investment works and development of facilities for LNG bunkering infrastructure in Baltic Sea ports.

BPO projects:
LNG in the Baltic Sea Ports (I and II)

Global project: Development of an LNG bunkering network in the seaports of the Baltic Sea region as an element of the Baltic Motorways of the Sea Programme
LNG in the Baltic Sea Ports projects

Check website and reports
LNG in the Baltic Sea Ports Projects

Port of Stockholm

Ro-pax Viking Grace
1200 plus bunkering operations
Case studies

Port of Gdynia

Bunkering of Ireland vessel by Lotos and PGNiG
Case studies

Port of Gdańsk

Bunkering of Fure Valo vessel by Lotos and PGNiG
Case studies

Port of Helsinki

Turva - coastal guard vessel →

Polaris - the first ever LNG-fueled icebreaker
Case studies

Port of Oulu

LNG-fueled icebreaker Polaris
Case studies

Port of Gothenburg (offshore)

LNG ship to ship bunkering

Skangas together with Anthony Veder
Case studies

Port of Rostock

Bunkering of Greenland
Skangas, Coralius

Type: LNG feeder and bunkering
Delivery: June 2017
Size: 5,800 m³
LNG bunkering fleet

Nauticor, Kairos

LNG feeder and bunkering
In operation: December 2018
Capacity: 7.500m³

Concept: supply marine customers and small-scale LNG terminals along the Baltic Sea coast
LNG bunkering fleet

Esti Gaas

LNG bunker vessel
Planned delivery: September 2020
Capacity: 6.000m³

Concept: providing efficient LNG bunkering for the growing number of LNG-fuelled vessels in the North-East of BSR and onshore clients
LNG bunkering fleet

Helsingborg

Bunker ship designed for the market area of Helsingborg

LNG fueled ships in the Baltic

Viking Grace
LNG fueled ships in the Baltic

Ro-pax Tallink Megastar
LNG fueled ships in the Baltic

MS Viikki

the world’s first LNG powered handysize bulker
LNG fueled ships in the Baltic

Ternsund (1/4) owned by Terntank (Sweden)
LNG fueled ships in the Baltic

C/V “Wes Amelie”
Operated by Unifeeder
LNG fueled ships in the Baltic

Auto Energy vessel, United European Car Carriers (UECC)
LNG fueled ships in the Baltic

AIDA cruise vessel: “AIDAnova”
Shipyard Meyer Werft, Papenburg, Germany.
Christening/naming ceremony
Baltic ports

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Baltic Ports Conference 2019!

4-6 September 2019 | Stockholm, Sweden

BPC 2019 in Stockholm
Go Baltic!

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