LNG Competence Development in the BSR

dr inż. Stefan Jankowski

Warsaw, 29/01/2019
Go LNG Project main goals

- Promotion and dissemination
- Research and advise
- Cooperation
- Education

BSR LNG CC
Founders of BSR LNG Competence Centre

1. Klaipeda Science and Technology Park
2. NPPE Klaipeda Shipping Research Centre
3. Hochschule Wismar, University of Applied Sciences: Technology, Business and Design
4. World Maritime University
5. Blekinge Institute of Technology
6. Maritime University of Szczecin
7. Motus Fundation
8. Klaipeda University
9. Lithuanian Maritime Academy
10. Wroclaw University of Science and Technology
11. Tallinn University of Technology
12. Municipality of Samsø
13. Lithuanian Energy Institute
Members of BSR LNG Competence Centre

FUTURE IS DESIGNED BY KNOWLEDGE

This network of educational institutions has been established to mobilise the infrastructure of science and research studies in the Baltic Sea countries, to promote LNG study programmes, to develop training and research, and to increase the availability of knowledge about LNG technology among business representatives, developers and the implementers of energy and environmental policies. The BSR LNG Competence Centre will develop a model of interinstitutional cooperation that will enable the development of the joint projects and services required for the LNG sector.

FOUNDERS OF BSR LNG COMPETENCE CENTRE

- Motus Foundation
- WM University of Technology
- Klaipeda Shipping Research Center
- Klaipeda University
- Lithuanian Energy Institute
- Tallinn University of Technology
- Samso Kommune
- University of Lodz
- Politechnika Wrocławska

Request for competence center membership
Education / BSR LNG Competences Centre

• Prepare people for LNG!

Why?
• All professional activities needs to be conducted at minimum acceptable risk level
• LNG is not so easy going fuel like the traditional ones
• LNG has additional danger - extremely low temperature
• LNG has an expiration date - needs to be used in specific time, if no possibilities to re-liquify
• LNG is getting older / a composition is changing along with subsequent refueling / more and more percentage of heavier hydrocarbons
Dedicated vehicles

Due to economic reasons which comprise:

• *ratio of storage tank's size to fuel quantity*
• *Consumption of fuel in specific time*

the LNG powered vehicles should be relatively big and basis on regular fuel consumption
LNG personnel

Within few years shipping, transport and energy producers, will need personnel to handle the LNG infrastructure, facilities and vehicles:
• Crew for LNG powered vessels
• Cisterns drivers
• LNG powered vehicles drivers
• Bunkering / refilling stations operators
• Etc.
Regulations for seafarers

• **IGF Code** - International Code Of Safety For Ships Using Gases Or Other Low-flashpoint Fuels; in force since 01 January 2017

• **STCW** - *Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on ships subject to the IGF Code*; in force since 01 January 2017
  
  • Basic training
  
  • Advanced training
STCW / IGF

• Basic training
  • Required for seafarers responsible for designated safety duties associated with care, use or emergency response to the fuel on board such ships

• Advanced training
  • Masters, engineer Officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code
LNG personnel

- Bunker barge / bunker vessels
- Vessels powered by LNG
- Truck cisterns
- Port’s bunker infrastructure
- Port equipment
- Inland vessels
- LNG powered trucks
- LNG powered trains

LNG management level
LNG support level
LNG operational level
Hazardous zone – an area in which a combustible or explosive atmosphere can be expected
Safety zone – an area in which a potential leak of LNG, could harm life or damage equipment / infrastructure
Security zones - Monitoring & Security Area, Marine Exclusion Zone, External Zone
Identified target groups

- Business management level
- Port authority
- Maritime administrations
- Policy makers
- Crews of tugs and other port auxiliary vessels
- Port personnel
- Business operational level
- LNG powered truck or other vehicles
- LNG bunker /refueling stations operators, LNG cisterns drivers, etc.
LNG Maritime Basic training / STCW

1. **Contribute to the safe operation of a ship subject to the IGF Code**
   Explanation of physical and chemical properties of LNG and other low flash point fuels; description of fuel and storage systems for cryogenic liquids; procedures and devices providing the safety during LNG operations; Transfer/bunkering operation of LNG.

2. **Take precautions to prevent hazards on a ship subject to the IGF Code**
   Description of health, ship, equipment and environmental hazards associated with LNG operations and explanation on how to control these hazards; understanding of fuel characteristic presented on a Safety Data Sheet.

3. **Apply occupational health and safety precautions and measures**
   Description of safety means applied during LNG operation; basic knowledge on Medical First Aid with references to a Safety Data Sheets.
LNG Maritime Basic training

4. **Fire fighting**
   Organization of fire fighting actions, firefighting agents and methods, firefighting system operations. Theoretical only

5. **Respond to emergencies**
   Description of emergence procedures and requirements for: emergency breakaway, emergency Shut Down etc.

6. **Take precautions to prevent pollution of the environment from the release of fuels found on ships subject to the IGF Code**
   Description of measures and procedures to be taken in the event of leakage, spillage, venting of the fuels.
LNG value chain training / the fixed part

1. **Contribute to the safe operation related to LNG**
   Explanation of physical and chemical properties of LNG and other low flash point fuels; description of fuel and storage systems for cryogenic liquids; procedures and devices providing the safety during LNG operations; Transfer/bunkering/refueling operation of LNG.

2. **Take precautions to prevent hazards related to vehicle powered by LNG**
   Description of health, ship, vehicle, equipment and environmental hazards associated with LNG operations and explanation on how to control these hazards; understanding of fuel characteristic presented on a Safety Data Sheet.

3. **Apply occupational health and safety precautions and measures**
   Description of safety means applied during LNG operation; basic knowledge on Medical First Aid with references to a Safety Data Sheets.
LNG value chain training / the flexible part

1. Comprehensive LNG supply for maritime customers in the Baltic Sea;
   Jan Schubert, Nauticor

2. LNG supply chain and commercial solutions
   Rafał Rygielski, Emerson Process Management

3. Conversion of ship’s propulsion to LNG fueled – design aspects
   Michał Sienkiewicz, Remontowa Marine Design & Consulting

4. Identification and evaluation of LNG supply chains
   Lawrence Henesey, Blekinge Institute of Technology

5. LNG for Rail- LNG Hybrid Shunting Locomotive
   Rustam Alijev, Vilnius Locomotive Repair Depot, Lithuania

... and more
### Target groups

<table>
<thead>
<tr>
<th>quantity</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNG management level</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>LNG support level</td>
<td>Yellow</td>
<td>Yellow</td>
<td>Red</td>
</tr>
<tr>
<td>LNG operational level</td>
<td>Yellow</td>
<td>Red</td>
<td>Red</td>
</tr>
</tbody>
</table>

- LNG Value Chain training
- LNG Maritime Basic training
- LNG Maritime Advanced training
Target groups

• Value Chain Training (LNG management level)
  • Business management level
  • Port authority
  • Maritime administrations
  • Policy makers

• Maritime Training
  • Basic (LNG support level)
    • Required for seafarers responsible for designated safety duties associated with care, use or emergency response to the fuel on board IGF ships
    • Crews of tugs and other port auxiliary vessels
    • Port personnel
    • LNG cisterns drivers,
    • Business operational level
  • Advanced (LNG operational level)
    • Masters, engineer officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code
    • LNG bunker /refueling stations operators, etc.
## Competence Centre’s calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Place</th>
<th>Maritime LNG</th>
<th>LNG Value Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-16/11/2017</td>
<td>Klaipeda/ Lithuania</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>6-7/12/2018</td>
<td>Świnoujście/ Poland</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>6/3/2018</td>
<td>Gdańsk/ Poland</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>25-26/04/2018</td>
<td>Malmë/ Sweden</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>16-17/05/2018</td>
<td>Tallin/ Estonia</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>7-8/06/2018</td>
<td>Rostock/ Germany</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>11/09/2018</td>
<td>Oslo/ Norway</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>20/09/2018</td>
<td>Riga/ Latvia</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>26/09/2018</td>
<td>Fredericia/ Denmark</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>04/12/2018</td>
<td>Attiki/ Greece</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>14/11/2018</td>
<td>Turku/ Finland</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>29/01/2019</td>
<td>Warsaw/ Poland</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>7-8/02/2019</td>
<td>Hamburg/ German</td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>

**Participants**

- 278
- 552
Thank you for your attention