Utilization of LNG cooling energy
Arvydas Skuodas Marketing Department
2016 October 26 d.
LNG in industry

- Heating and energy production
- Shipping
- Road transport
- Railway transport
- Cold industry

LNG as a product
LNG in Shipping

Development of LNG fuelled ships

Year of delivery

- Total in operation
- Total under construction/contract signed
1. LNG as a ship fuel can help significantly reduce the environmental impacts of shipping operations:
   - CO2 reduction ~ 25%
   - NOx reduction 85-90%
   - PM (particulate matter) reduction ~ up to 100%
   - SOx reduction ~ up to 100%
   - Maintenance costs reduction ~ up to 20%.
   - Meets requirements in IMO TIER III (2016) and Marpol convection 73/78 annex IV

2. Approx. 30% lower bunker price

3. Investment in technology increases the region's shipbuilding industry’s competitiveness:
   - The majority of the LNG-fueled ships built and operated in the Baltic and North Sea regions.

4. Development of LNG infrastructure:
   - After appearing LNG infrastructure’s demand, it is planned to build more than 140 LNG ground terminals to assure LNG supply.
Western Ship Yard LNG Project (*car ferry „Boknafjord“ 2011 y.)*

- **Lengths overall**: 129.90 m
- **Breeds moduled**: 19.20 m
- **Summer draft**: 4.5 m
- **Main Engine LNG**: 3x2310 kW
- **LNG capacity**: 600 m³
- **Operating speed**: 21 knots
### WBE Conceptual LNG Project: Ro-Rail LNG Ferry (Kazmortransflot)

**KAZMORTRANSFLOT**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>154.40 m</td>
</tr>
<tr>
<td>Breadth moduled</td>
<td>17.50 m</td>
</tr>
<tr>
<td>Summer Draft</td>
<td>4.77 m</td>
</tr>
<tr>
<td>Main Engine</td>
<td>LNG / Diesel 2x1550 kW</td>
</tr>
<tr>
<td>LNG capacity</td>
<td>145 m³</td>
</tr>
<tr>
<td>Operating speed</td>
<td>12 knots</td>
</tr>
</tbody>
</table>

The capacity of fuel oil tanks is accepted to ensure cruising range of 1500 miles.

The capacity of LNG tanks is accepted to ensure cruising range of 1000 miles.
WBE conceptual LNG Project: Small scale bunkering vessel

- Length overall: 101.0m
- Breadth module: 19.0 m
- Summer draught: 5.80m
- Main Engine: LNG / Diesel, 1665 kW
- LNG fuel capacity: 145 m³
- Vessel Speed: 12 knots
- LNG bunkering capacity: 7000 m³
Dual powered ships LNG/Diesel for Klaipeda port

- Car ferry and
- Trailing Suction Hopper Dredger
WBE strategy in LNG development

- Technological solutions and LNG bunkering stations production;
- Technological solutions for LNG vessels tanks and small-scale distribution ground based terminals;
- Technological solutions for floating small-scale LNG terminals, bunkering ships;
- LNG research laboratories establishment to quality assurance;
- Projects for waste cold utilization
Projects for waste cold utilization

During LNG evaporating process – cold is a waste!

Could we use it?

Where?
Projects for waste cold utilization

LNG powered ships:

Factory fishing ships

- Deep fish freezing
- Cold storage rooms for food
- Air conditioning of wheelhouse, engine room & crew accommodation
Projects for waste cold utilization

LNG powered ships:

Cruise vessels

- Air conditioning of passenger’s and crew accommodation areas

- Frozen and cold products warehousing

- Air conditioning of engine room, wheelhouse, IT equipment
Joint project for Cold Industry

“KETONAS” UAB is providing frozen products warehousing services: 8000 m³ of refrigerated warehouses (capacity ≈ 6000 tons of refrigerated products) with temperature range +12°C/-25°C (Freon and ammonia refrigerating facilities)

Idea to use Cold energy gained during LNG evaporation
The benefits and disadvantages:

- Using green energy
- Refuse to use Freon
- Using cold gained during evaporation of LNG
- Saving up electrical energy used before for compressors
- Gas after LNG regasification go to city gas network for household needs
- Additional costs for equipment & installation
Thank you for attention!

Arvydas Skuodas
Marketing & Sales
- Phone +370 (699) 48790, +370 (46) 483 617
- Fax +370 (46) 483627
- E-mail arvydas.skuodas@wsy.lt
- Website www.wsy.lt

Conceptual WBE projects
- Fisch Farming – feed barge
- Crab catcher
- LNG bunkering vessel
- Ro-Rail vessel – LNG powered
- Fishing Trawler