

# **LNG Bunkering: Comments on the Gap Analysis from a Gas owner**

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- Advantages of LNG as a transport fuel are fully recognised
- For decades handling and transport of LNG both on land and at sea as cargo has been successfully operated.
- 30 gas fuelled vessels are operating mostly in the Baltic Sea and Norwegian waters.
- Some experience for LNG bunkering of smaller gas fuelled vessels operating in Norwegian and the Baltic Sea.
- Current small LNG demand is handled by LNG tank trucks with Truck to Ship transfer (TTS) .

**To be competitive, LNG bunkering must be possible for each type of gas fuelled vessel as bunkering Heavy Fuel Oil (HFO). This will include the possibility of safe bunkering of LNG during cargo loading and unloading as well during passenger embarking and disembarking operations.**

# LNG Bunkering

## ■ On-shore & Maritime Operations – A question of scale

### Shore LNG Supply Facilities

- Onshore permanent installation



- Onshore mobile installation



### Offshore LNG Supply Facilities

- LNG bunkering vessel/barge
- LNG offshore storage



### LNG Bunkering Facilities

Scope of standard

Shore-to-ship transfer

Truck-to-ship transfer

Ship-to-ship transfer

### Receiving Ship



Basically LNG storage facilities, trailers, containers shall be governed by specific standards or national and/or local laws. If necessary, this standard defines additional requirements.

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Source: ISO TC 67 WG 10

**+ Mobile Tanks**

**Need to assess issues such as LNG logistics, and fuel quality (Methane Number)**

# GAP Analysis (A view of a Gas owner)

The Interim report of EMSA on standards and rules for bunkering gas fuelled ships is comprehensive as are the identified gaps. We consider the important issues to be:

- The LNG bunkering procedure is not regulated. As the process is starting up, we have to ensure the best practices/procedures are in place to ensure no methane leaks during normal operation. Today there is very limited experience with LNG bunkering. ISO TC 67 WG 10 will result in a guidelines/best practices. Need to advance by learning from experience, whilst maintaining the same safety levels as rest of the LNG industry. Guidelines, best practices or European Regulations?
- Need for common guidelines/best practices for technical and organisational requirements of each differing LNG Bunkering procedures (risk assessment procedures to identify common safety distances, connection and communications) as a basis for the European ports.

- The starting and ending point of the bunkering process are important and responsibilities have to be defined, i.e. the boundary conditions.
- Need to understand and differentiate between Transfer (large quantities in separate confined areas) and Bunkering (less LNG but in populated areas) and take into account these differences.
- LNG quality: We know what LNG is, but its composition VARIES DEPENDING ON SOURCE y its composition can CHANGE WITH AGEING.
- Sulphur measurements?
- Procedures for sampling and measurements: Already known? Or do we measure the tank or each refuelling?
- Sulphur measurements?
- Impact of LNG Supply logistics: Movement of LNG to and in the Ports
- LNG/CNG Satellite stations
- Accreditation of companies is obviously important

