Port of Helsingborg

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Why Helsingborg?

Helsingborg is a **strategic site**

- 3 million heavy goods vehicles passes by every year
- Appr. 50 000 ships passes by every year
- Good conditions in Öresund for bunkering
- Industries that could use LNG/ CNG

- City of Helsingborg has a **great environmental awareness**
  - The air quality in the centre of Helsingborg is a problem
  - LBG production in a large scale
Overview of the Ports LNG Projects

• LNG in Baltic Sea Ports Project I – initiative developed by BPO
• LNG in BSP II – sequel project activities and partners involved
• HEKLA – new LNG project in cooperation with Klaipedos Nafta

• Filling station for heavy trucks in operation 2014. New stations are under planning
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LNG in Baltic Sea Ports Project

Baltic Ports Organization has initiated the development of LNG bunkering infrastructure in 7 ports within the Baltic Sea Region.

Performed work in Helsingborg:

- Market, Profitability analysis, sourcing, location and stake holder’s analysis.
- Basic Design of the terminal and quay and investment calculation.
- Risk assessment project and check of process for permits
- Design of terminal and quay
- Preparation of permits and tender documents
HEKLA – Helsingborg & Klaipėda LNG Infrastructure

Real investment;

Helsingborg – Construction of LNG liquefaction plant
Klaipeda – Construction of on-shore LNG reloading station

An important step forward towards creating the LNG bunkering infrastructure network in the BSR.
Project activities:

Activity 2. LNG in Helsingborg:

• Develop a design for a multi-purpose LNG bunker ship in the area

  • The objective of this activity is to design a multifunctional bunker ship solution in south of Sweden

  • The multi-function ship will be able to provide – LNG bunkering; MGO bunkering & Other ship supply services

• LNG bunker ship study will describe the following: size, number fuel tanks, type of bunker fuel that the ship shall carry (the ship shall be running on LNG), type of other services that should be performed by the ship and crew, etc.
LNG demand forecast
Base scenario HBG terminal

Co-financed by the European Union
Trans-European Transport Network (TEN-T)
Key success factors

• Location that fulfill all parameters
• The shipping segment is crucial for critical volumes
• Control of the value chain before a final decision of business model
• The terminal must be established in steps and co-financing from EU is required.
• Co-operation with partners and stakeholders necessary for making an reliable infrastructure
Step 1,
✓ A liquefaction plant condensing LNG/ LBG from the grid with limited storage capacity.
   *LNG to heavy vehicles and small ships.*

Step 2,
✓ Extended storage capacity of 3000 – 5000 m³ (steel tanks)
✓ Rebuilding of existing berth
✓ A multifunctional bunker vessel
   *LNG to heavy vehicles, industry and ships*

Step 3,
✓ A full 15 000 m³ storage (full containment type)
✓ Decommissioning of steel tanks
   *LNG to heavy vehicles, industries and ships*

Step 4,
✓ New Jetty suitable for feeder vessels up to 40 000 m³
   *LNG to heavy vehicles, industries and ships*
Step four

Thanks for your attention
Market area – bunkering ship to ship
Scenario 1A
Description: An existing bunkering ship will be retrofitted to carry MGO, LS HFO and, as the new part, LNG. The total cargo fuel capacity of the ship shall be 2000-3000 m³. The LNG capacity shall be 500-1000 m³, the first being the basis for calculations. 
Investering: ca 50 - 70 milj SEK.

Scenario 1B
Description: As Scenario 1A but converting the main and auxiliary engines to gas fuelled. The engines can be dual fuelled engines or gas engines (i.e. spark plug installed for ignition). 
Investering: ca 70 – 90 milj SEK.

Scenario 2
Description: A new bunker ship carrying LNG, MGO and HFO with high flexibility to adjust to new market conditions. Tank volume 2000-3000 m³ (MGO, LS HFO and LNG in total). As adjustable to a new market situation the ship shall be classed for worldwide trade. 
Investering: ca 210 -220 milj SEK
Scenario 3
Description: A new self-propelled bunker barge for LNG and MGO. Some possibilities for a restricted service notation that has to be further agreed with the class and authorities.
Investering: ca 130 -140 milj. SEK

Scenario 4
Description: Retrofitting an existing bunker barge to carry MGO and LNG. An existing tug boat will transport the barge. LNG tank shall be approximately 500 m3 and the MGO tank approximately 500 m3. The tug is hired from external company when needed and could differ from time to time. The tank type can be one large type-C or several 40” ISO containers. It is assumed that it is not an articulated barge and tug as the tugs in Helsingborg Port shall be used.
Investering: ca 72- 75 milj. SEK
Scenario 5
Description: A 2nd hand transport barge is acquired and equipped with 40” ISO insulated LNG containers in the deck. The concept enables the client, as a supplement to their own LNG plant, to import LNG from external sources in containers that are landed in Helsingborg port. The containers can be transported by container ships arriving in Helsingborg where the infrastructure in the port allows the containers to be unloaded, stored and loaded onto the bunker barge. On-board the barge the containers are stowed in guides with bridges for access to the connection hoses if loaded in 2 tiers. Taking the stability of a barge into consideration 2 tiers (layer) of containers is assumed to be max without an actual barge selected. This means that free slots can be incorporated in order to allow filled LNG tanks to be taking on-board without removing the normal installed containers.

The capacity of the barge is assumed to be 500 m3 LNG gross for normal installed containers. The gross warm volume of one container is 43.5 m3; hence 12 containers to be installed on-board.

Investering: ca 63 - 65 milj. SEK