

# LNG in Baltic Sea Ports Projects

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Photo: Port of Stockholm



## Dear Friends,

The 'LNG in Baltic Sea Ports' project has been a part of my daily life for nearly three years and we are now approaching the successful end of this unique initiative. These years have brought a lot of opportunities to meet people engaged in different activities regarding LNG – be it infrastructure, bunkering, safety, consulting or any other issue across this interesting field. This has, in turn, created a rich and hopefully long-lasting network of stakeholders representing different countries and decision-making levels. As the project unrolled I also noticed an increased interest from the side of the maritime industry, something crucial if we are to announce a 100% success in the end. The coming two-three years will be crucial for the shipping industry in the Baltic Sea and also within the whole Sulphur Emission Control Area due to increased fuel costs. Hopefully, we will see a prosperous future for the shipping lines in this area and a reduced risk for modal back shift, thanks also to LNG.

I strongly believe that our project had, has, and will continue to have a positive impact on both the Baltic Sea region's environment and business. I'm also convinced that all persons involved in our undertakings to establish a viable LNG bunker infrastructure are proud to have participated in this important work. As you all may know we will have our summing up conference in Stockholm by the end of this year (don't forget to book your time from 2<sup>nd</sup> to 4<sup>th</sup> December!), with the grand finale on-board the LNG-driven *Viking Grace* cruise ferry. Nonetheless, already today I would like to send my warmest words of gratitude to all involved in the development of the 'LNG in Baltic Sea Ports' project.

Last, but surely not least, just after the completion of the project, a follow-up – 'LNG in Baltic Sea Ports II' – will take up the baton. Once more the Port of Helsingborg will coordinate the project with Rostock, Sundsvall, Trelleborg and Klaipėda becoming the new partner ports. We are looking forward to the continuation and invite all interested parties to join our efforts in making LNG the ships' fuel of choice in the BSR.

My best regards,

Per-Olof Jansson, Project Leader



# Job well done – more to come!



## Dear Friends,

The main aim of the Motorways of the Sea EU co-financed 'LNG in Baltic Sea Ports' project was to foster a harmonised approach towards LNG bunker filling infrastructure in the Baltic Sea region. Seven pioneering ports – Aarhus, Copenhagen-Malmö, Helsingborg, Helsinki, Stockholm, Tallinn and Turku – decided in 2012 to pave the way for LNG in the Baltic in particular, and in Europe in general. To keep up the momentum, the 'LNG in Baltic Sea Ports II' follow-up will kick-off just after the completion of the first part (December 31<sup>st</sup>, 2014). As in the case of the first part, the sequel project has been initiated by the Baltic Ports Organization (BPO).

Heading towards the end of our works, I must admit that the project's activities have progressed very well and according to schedule. The majority of partner ports have completed their local actions and are planning their next steps towards actually setting up LNG bunkering solutions. Project coordination and findings dissemination have been successfully achieved through numerous coordination and harmonisation meetings. Additionally, several seminars have been excellently arranged attracting top Baltic and EU LNG stakeholders, familiarising them with the project's results.

Talking about the most tangible effects, already the Ports of Stockholm and Helsinki have concluded associated studies and small-scale LNG bunkering is taking place in their harbours, either from a barge (Stockholm) or with the use of a tank truck (Helsinki). The *Viking Grace* cruise ferry, the world's first LNG-powered passenger vessel of such scale, links Turku and Stockholm on a daily basis. It will take some more time to witness LNG tanking in Turku, as the port's local detailed plan sub-activity has been delayed due to a court appeal and there will therefore be a postponement in the planning of the LNG terminal. Nonetheless, we are of good cheer and hope that the appeal will be turned down.

Some delays were also experienced with the sub-activities' completion in the Port of Tallinn in the areas of general and detail planning and Environmental Impact Assessment validation processes due to the involvement of local authorities. Nevertheless, all planned activities will be carried out eventually, but outside of the 'LNG in Baltic Sea Ports' project's scope.

The Copenhagen Malmö Port has finalised its studies and will continue aiming towards the development of LNG small-scale infrastructure. Both the Port of Helsingborg, the project's coordinator, as well as Aarhus port have recently completed their reports; the findings are a great starting point and will surely come in handy during real investments. Helsingborg decided to further proceed with studies and will be taking part in the 'LNG in Baltic Sea Ports II' sequel initiative working on a multifunctional bunker ship design.

Overall, the project has been well recognised by the European Commission and the EU Innovation & Networks Executive Agency. The succeeding 'LNG in Baltic Sea Ports II' follow-up was proposed for co-financing by the Financial Assistance Committee of the TEN-T Programme in July 2014. Apart from Helsingborg, four new partner ports will join the LNG initiative – Klaipėda, Rostock, Sundsvall and Trelleborg – giving in effect an extensive network of 11 ports with planned facilities for LNG bunkering in the Baltic Sea region.

As was mentioned in one of the previous newsletters – Liquefied Natural Gas will become a success story – and we'll be continuing our works to make it happen in earnest and in the best possible way.

Emil Arolski, Project Manager of 'LNG in Baltic Sea Ports'



Photo: Port of Helsinki





## Project partners' final summaries

# Looking back and ahead

## AARHUS HAVN PORT OF AARHUS

**PORT OF AARHUS, DENMARK**  
**Kim Meilstrup**  
Project's Activity Leader  
at the Port of Aarhus

In the Port of Aarhus we have been working, along with other partners participating in the 'LNG in Baltic Sea Ports' project, on investigating the possibilities of establishing an LNG terminal in the port. We have finalized the feasibility study which unfortunately did not give a clear picture whether it is feasible (or not) to make a terminal investment of approx. EUR 20 mln (plus the costs for quay infrastructure, road to/from the terminal as well as renting the land). It all depends very much on the yearly LNG turnover and on the cost per energy unit; however, these parameters are not easy to predict. If a big ferry company like Mols-Linien would decide to switch from Marine Gas Oil to LNG, it would be realistic and feasible to construct an LNG terminal. Nonetheless, the company is not ready to make a go for LNG until their ship charter agreements expire in 2022.

However, the Port of Aarhus has decided to carry on with other tasks within the project. We are at this moment ready to submit an application for an Environmental Impact Assessment (EIA) to the authorities. In connection with this we are in the process of preparing most of the expected requirements for the related environmental investigations. Furthermore, we have prepared some of the other necessary documents to get approvals from the authorities (e.g. a risk analysis). In order to carry out the EIA analysis, it is also necessary to prepare a preliminary layout design of the expected LNG terminal on a specific location. This has been done for a facility featuring seven semi-pressurized tanks, each with a capacity of 1,400 m<sup>3</sup>. Additionally, there will be flexible pipes and valves in order to make it possible to fill up ferries or bunker ships as well as to receive LNG from tankers. Finally, the terminal's buildings (like offices) will be properly equipped to use the boil-off gas included in the design.

Altogether we are optimistic when it comes to the future use of LNG in the Port of Aarhus. Our major concern now is the timeframe regarding the next steps (like the EIA), until we will be able to offer LNG ship bunker facilities in the harbour.

## CMP COPENHAGEN MALMÖ PORT

**COPENHAGEN MALMÖ PORT, DENMARK/SWEDEN**

**Brian S. J. Kristensen**

Project's Activity Leader at Copenhagen Malmö Port

At Copenhagen Malmö Port (CMP) our main goal was to conduct a feasibility study which could provide us with initial information in order to proceed with the LNG issue. During 2014, alike during the whole duration of the project, we had numerous meetings and talks with different stakeholders. We learned a lot from our partners as it was indeed a very fruitful time.

Based on the discussions and various LNG-related activities in general, we believe that there is a future for LNG; however, we have also learned that "there's no such thing as a free lunch." Still a lot of work needs to be done before actually establishing an LNG terminal in CMP. But nevertheless we will continue our LNG studies and continuously search for the appropriate setup/idea and business partners. We are confident and do hope that Copenhagen Malmö Port, when the time is right, will be able to add the "supply of LNG" to its services.

## PORT OF TALLINN

The Port of Good News

**PORT OF TALLINN, ESTONIA**  
**Natalja Baidina**  
Project's Activity Leader  
at the Port of Tallinn

Already five years ago the Port of Tallinn set a strategic goal to create a suitable environment for handling liquid gas. I can say that we have come a long way regarding preparations but there is still a long way ahead of us, because in order to secure the transition from traditional to LNG-fuelled engines, ship-owners and their operators need to be sure that there are possibilities to shift vessels between ports in the area without losing their access to LNG bunkers.

It is the Port of Tallinn's aim to ensure the availability of the necessary infrastructure at our harbours to guarantee the smooth and sustainable movement of cargo and passengers. At the beginning of 2013, Tallinn signed a contract with Pöyry Management Consulting Oy to carry out a feasibility study and a cost-benefit analysis of LNG bunkering infrastructure construction in the harbours of the Port of Tallinn. The main goal of the study was to evaluate the market potential of LNG as bunkering fuel in the Baltic Sea region, to find out the most efficient LNG supply chain as well as to address the questions of logistics and feasibility in general.

According to the feasibility study: "LNG demand in the Port of Tallinn area will increase over time as LNG-fuelled vessels become more common." Unfortunately other LNG related activities in Tallinn, such as generating layout options, preparing tender documents and design activities are most likely to be postponed due to delays in general and detail planning and Environmental Impact Assessment validation processes, which are not under our control. Nonetheless, the Port of Tallinn continues its works concerning both the LNG terminal planning and Socio-Economic Impact Assessment in cooperation with the local municipality, consultants, the Environment Board and other parties.



**PORTS OF STOCKHOLM, SWEDEN**

**Sandra Gegerfelt**

Project's Activity Leader

at the Ports of Stockholm

PORTS OF STOCKHOLM

Within the 'LNG in Baltic Sea Ports' project we have prepared first and foremost for LNG bunkering in Stockholm. This became a reality in 2013 and has continued successfully since then. A feasibility study of the future LNG bunkering possibilities in all parts of the harbour has been conducted as well, something which will surely come in handy during the upcoming port development projects. We have also produced a safety manual as well as focused on communication activities such as conferences or producing a brochure on LNG. The Ports of Stockholm are positive when it comes to the increasing future use of LNG as a marine fuel. In order to comply with the new environmental regulations but also, more importantly, to make shipping truly sustainable, a shift towards alternative fuels is necessary. The Ports of Stockholm have already gained plenty of experience on safety issues regarding transporting and using LNG as a ship's bunker. Moreover, we have also gained well-established contacts with relevant stakeholders and authorities for a swift cooperation in clearing the way for LNG. Therefore, we are well prepared for and very much welcome the introduction of more gas-fuelled vessels in the Baltic Sea.





**PORT OF HELSINKI, FINLAND**  
**Jukka Kallio**  
Project's Activity Leader at the Port of Helsinki

The feasibility study has shown that the ship-to-ship method will be the most practical solution concerning bunkering operations in the Port of Helsinki as well as in the Vuosaari Harbour. Given the numerous structures in Helsinki port and their different usages, the ship-to-ship option gives the best flexibility (e.g. compared to a fixed or portable container), being at the same time an economically sound solution as it does not require any port infrastructure investments (almost all traffic in Helsinki goes according to a schedule, therefore it's hard to imagine moving ships to a specific quay only to conduct bunkering). In addition, an LNG terminal located anywhere on the shores of the Gulf of Finland would not limit the use of this option in Helsinki. What's also important, bunkering is not a part of the port's core operations, and it should be performed by a private operator. However, the ship-to-ship option requires more vessels running on LNG, otherwise it will be very difficult to find a company willing to invest in a bunkering vessel/barge. Up-to-date we have witnessed a few LNG bunkering operations taking place in the Vuosaari Harbour. The brand-new coast guard ship *Turva* has been tanked with LNG several times. This was done using the truck-to-ship solution, which is suitable for the Port of Helsinki as well, but when and if the bunkering volumes will increase, the best option for us would be the mentioned ship-to-ship method. Talking about the future of LNG Baltic Sea, we need an import terminal in Finland and there are several plans of making this come true; for instance Gasum wants to build such a facility in Inkoo, situated some 50-60 km west of Helsinki (at the moment Gasum has a liquefying station in Sköldvik, but the plant is fairly small and cannot supply LNG on a large scale). Moreover, the future of LNG also depends on the price difference between gas and other fuels as well as being subjected to upcoming regulations (e.g. concerning NOx emissions).



**PORT OF HELSINGBORG, SWEDEN**  
**Roland Brodin**  
Project's Activity Leader at the Port of Helsingborg

Since 2012 the project 'Helga' has been investigating the possibilities of setting up a maritime LNG terminal in the area of Helsingborg. The task has turned out to be fairly difficult since the maritime market demand is hard to predict. To be able to handle this, we have used a business orientated design approach. The terminal in Helsingborg will serve three sectors: shipping, industry and heavy vehicles. There is a fast-growing demand for Liquefied Biogas (LBG) and LNG to be used by lorries, whereas it is most likely that LNG volumes for the shipping industry will grow more slowly; significant volumes could be foreseen in 2018-2020. This all means that Helsingborg will firstly invest in a liquefaction plant to produce LBG and LNG for the transport sector (heavy vehicles and smaller ships). The next step foresees establishing a regional 15,000 m<sup>3</sup> LNG terminal, which will serve all three sectors. There will be a sustainable bunker solution in the market area of Helsingborg when the maritime sector is ready to take advantage of it. Business possibilities in the area are in the long-run excellent due to the fact that Helsingborg functions as a logistics hub for the south of Sweden. Around three million heavy vehicles and some 45,000 ships pass Helsingborg every year. What's also very important, Helsingborg's LNG offer will significantly lower the transport sector's environmental footprint.



**PORT OF TURKU, FINLAND**  
**Markku Alahäme**  
Project's Activity Leader at the Port of Turku

With the help of the project the Port of Turku has carried out various research and development works on promoting the introduction of LNG. We have investigated LNG bunkering facilities in the port's areas from both technical and safety perspectives, set up safety instructions for LNG bunkering as well as commissioned various reports related to the building of an LNG terminal. The reports have given the Port of Turku a good base for starting regular LNG bunkering. Initially, fuelling would be done with the use of a tank truck, while later it would be possible to switch to bunkering directly from a vessel or from a solid intermediary tank. In addition, our studies on the LNG terminal can be directly utilized in a further planning and building stage of the facility. At an early stage, promoting the use of LNG will need support from the side of land-based industry, since maritime demand will grow slowly following more and more LNG-driven vessels entering into service. There is high interest in using LNG in Finland, and there are plans to build terminals in quite a few ports. As the use of LNG becomes more common in the Baltic Sea region, it will be necessary to standardize procedures and instructions created by both the Port of Turku and other parties to secure LNG bunkering and the easiness of using it, keeping in mind safety aspects at all times.

## LNG in Baltic Sea Ports projects upcoming events

### 2014 events

**LNG in Baltic Sea Ports – Final Conference &**

**LNG in Baltic Sea Ports II – Kick-Off**  
LNG Conference, 2<sup>nd</sup>-4<sup>th</sup> December, Stockholm, Sweden

### 2015 events

**Coordination Harmonisation and Know-how transfer meetings**  
**Baltic Ports LNG Forum and LNG Training scheme**

**For more information see**  
**[www.lnginbalticseaports.com](http://www.lnginbalticseaports.com)**

### PROJECTS INFO

**Project Leader:** Per-Olof Jansson, Chairman of the Steering Group, Port of Helsingborg (SE)

**Project Manager:** Emil Arolski, Head of International Development, Actia Forum Ltd. (PL)

**Partners I:** Port of Aarhus (DK), Copenhagen Malmö Port (DK/SE), Port of Helsingborg (SE), Port of Helsinki (FI), Ports of Stockholm (SE), Port of Tallinn (EE), Port of Turku (FI)

**Timetable:** January 2012–December 2014

**Partners II:** Port of Helsingborg (SE), Port of Trelleborg (SE), Port of Sundsvall (SE), Port of Rostock (DE), Port of Klaipėda (LT)

**Timetable:** January 2014–December 2015

**FOR MORE INFORMATION:**  
**[www.lnginbalticseaports.com](http://www.lnginbalticseaports.com)**



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