

Brunsbüttel Ports GmbH



Feasibility study: Establishment of an offshore-shuttle Schleswig-Holstein



Executive Summary



The study is within the framework of the project LO-PINOD the NSR program, which is funded from the European Regional Development Fund.



Executive Summary

Within the framework of the LO-PINOD project, Brunsbüttel Ports worked out logistical solutions for the servicing and installation of offshore wind farms through the networking of small and medium sized regional ports. Near the coast of Schleswig-Holstein seven offshore wind farms will be erected. This offers an excellent business diversification opportunity for local regional ports. Through cooperation it has been established that all the services required can be offered to the wind energy sector by the ports of Schleswig-Holstein. This has been reported in the separate document: *Concretization of the Port concept Offshore-Häfen Nordsee SH*.

As a follow-up to that study Brunsbüttel Ports have worked out a feasibility study for the establishment of an Offshore-Shuttle in Schleswig-Holstein. The idea is that a waterside shuttle can connect the offshore ports of the western coast of Schleswig-Holstein to bundle cargo flows of the renewable energy sector.

This also demonstrates the flexibility of regional ports and their ability to adapt to changing market forces. This particular ports grouping is also a demonstration to other LO-PINOD partners, and to the wider North Sea Region, of the benefits of regional ports working together to address market opportunities and offer joined-up collaborative solutions. Indeed, Lo-Pinod partners have also offered knowledge exchange and input into Brunsbüttel's proposals. This will be used to inform the proposed LO-PINOD project legacy output of a regional ports collaborative grouping.

On the following pages you will get an overview about the background, the key results and outcomes of the feasibility study.

1. INTRODUCTION LO-PINOD

LO-PINOD: Ensuring economic growth of regional ports through diversifying port service and Building an efficient and sustainable transport network.

Globalisation and an increasing demand for goods have led to a growing requirement for more sustainable freight movement in Europe and diversified use of land resources and new operative models for regional ports. Freight movement by road causes congestion on the main transport routes, prompting a need to review how freight can be moved more efficiently and sustainably, enabling ports to develop their economic efficiency and reflect emerging emissions regulations

LO-PINOD (Logistics Optimisation for Ports Intermodality: Network, Opportunities, Development) challenges existing thinking on freight distribution and offers a more sustainable and efficient alternative. By improving shortsea routes, local ports and their inland connections, LO-PINOD encourages freight to be distributed much closer to its final destination by sea. Greater use of regional ports can further balance Europe's congested transport network. This reduces an over-reliance on road transport, lessens the environmental impact of the supply chain and helps to deliver social and economic benefits to communities and businesses across the region.

Led by the Institute for Sustainability, LO-PINOD is funded by the EU Interreg IVB NSR programme and comprises 15 partners from Belgium, Denmark, Germany, Netherlands, Norway, Sweden and the UK.

With an emphasis on optimising the functionality, capacity and potential of regional ports, the project enables cooperation and knowledge sharing and focuses on the following key areas:

Objectives

Improving multi-modal landside links

Optimising rail, road and inland shipping links to enhance access to and from regional ports. Partners are also promoting policy change nationally and at EU level to encourage greater use of regional ports, short sea shipping and multi-modal transport chains.

Exploring access to commercial markets by sea

Developing maritime connections between hub and regional ports to help provide a more efficient and robust transport network. Partners are exploring new short sea services to encourage the shift of freight, including fresh produce and bulk cargoes from road and onto more sustainable modes of transport.

Sustaining regional ports and developing local jobs

Creating efficient and diversified ports and freight handling facilities makes ports more attractive and gives greater choice for freight movement. This includes benchmarking and implementing best practice in areas such as port security, safety, operational procedures and general management as well as developing new markets and business opportunities to increase port traffic.

Port diversification into maritime energy sector

Using ports location and connectivity to explore new opportunities for ports to diversify their activity and apply their operational and management experience to emerging sectors such as maritime renewables. Developing the skills and networks to fully maximise opportunities to secure local economy and jobs.

Enabling ports to lobby with one voice

Bringing regional ports together to identify key issues and assessing impact of key policies and regulation. Enabling ports to develop joint positions and recommendations to lobby both nationally and specifically at EU level and explore innovative funding mechanisms.

Improving linkages with towns

Partners are exploring ways in which ports can regain a more prominent place in their local community. This includes work at ports which are using their heritage status to encourage better engagement with their local community and attract visitors. This has a positive impact on both the perception of the area and the local economy.

For more information on the project, visit www.lopinod.eu

2. INTRODUCTION BRUNSBÜTTEL PORTS GMBH

With the strategically exceptional location of Brunsbüttel at the lower Elbe and at the Kiel-Canal the group of Ports at Brunsbüttel – Elbehafen, Oilport and Port of Ostermoor – offers direct access to North and Baltic Sea as well as to the European inland waterways, being in close distance to Hamburg with available industrial areas next to the port. These advantages of location but also the extensive range of the maritime services around the commodity of “sea cargo” make the Ports an attractive centre for cargo handling for the largest connected industrial area of Northern Germany and for the metropolitan area of Hamburg.

2.1 Core competencies

Brunsbüttel Ports GmbH serves regional customers as well as national and international customers in the range of

- cargo handling
- storage
- transit and project logistics

Wind energy sector and Hafenkooperation Offshore-Häfen Nordsee SH

The handling, storage and transportation of wind power stations are a basic element within the product range. For years now Brunsbüttel Ports GmbH is able to increase the turnover-figures of this segment year by year. Amongst others 5MW offshore wind power stations are stored temporarily and then transshipped onto sea vessels and barges at Brunsbüttel.

Brunsbüttel Ports GmbH is spearheading an initiative to enable a number of small and medium sized ports in northern Germany to work together and provide a comprehensive service to the growing offshore wind-energy sector, named “Hafenkooperation Offshore-Häfen Nordsee SH”. On their own, these ports cannot fulfill all necessary requirements to raise interest of the energy sector, but through cooperation, they are able to deliver an effective and workable solution. The ports of Brunsbüttel, Büsum, Dagebüll, Helgoland, Husum, Hörnum, List, Rendsburg-Osterröfendl and Wyk auf Föhr have agreed on working together in a cooperation with the purpose to offer to the offshore-windfarm operators the complete package of maritime services for their windfarms with regards to installation and servicing. The cooperation puts its focus on “production, logistics and service ports for offshore-windfarms. The port cooperation is a pilot project because it is the first cooperation of ports with the focus on offshore-wind energy. The knowledge and output of this cooperation will help other offshore ports to optimize their logistical concepts.

Recently the Danish Port Havneby/Rømø has joined the cooperation and will be integrate in the future activities of the port cooperation. With this step the port cooperation is grown from a national and regional to a transnational cooperation.



Ports of “Hafenkooperation Offshore-Häfen Nordsee SH”

3. BRUNSBÜTTEL PORTS ACTIVITIES AS PART OF THE LO-PINOD PROJECT

Brunsbüttel Ports GmbH is leading the cooperation “Hafenkooperation Offshore-Häfen Nordsee SH” a cooperation of several small and medium sized ports. All ports of this cooperation have concerned the renewable offshore wind energy as a big chance for themselves and diversify their port activities according to this. The innovative aspect of this port cooperation is that by networking of ports the strength of each port can be bundled with the result that innovative and sustainable logistical concepts can be offered to the renewable energy market. Every port undertakes a different function. One port alone is not able to fulfill all necessary requirements of the offshore wind energy market but collectively a complete maritime package can be offered. One objective of LO-PINOD is to explore new opportunities for ports to diversify their activity and apply their operational and management experience to emerging sectors such as maritime renewables. With this pilot project Brunsbüttel Ports deliver a lot of new experiences to the LO-PINOD project and their partners. By sharing the obtained experiences and during ongoing discussion with the LO-PINOD partners also experiences from other ports were helpful to plan the next steps.

4. MANAGEMENT SUMMARY – „ESTABLISHMENT OF AN OFFSHORE-SHUTTLE“

In 2012 Brunsbüttel Ports GmbH assigned UNICONSULT to work out a feasibility study for establishment of an Offshore-Shuttle in Schleswig-Holstein. The idea was one result of the study “logistical concepts for installation and servicing offshore wind farms by networking of small and medium sized port” which has been worked out in 2011. Following the summary of the results of the feasibility study are shown.

The offshore wind power sector in Germany is seeing rapid growth due to governmental programs which aim to expand the usage of renewable energy sources. By 2030 up to 25 GW of offshore wind power shall be installed in the Exclusive Economic Zone of Germany. Currently the industry is facing several challenges, including logistical and financial issues, which lead to a postponement of the startup of several offshore wind farms. This allows the Port Cooperation of North Sea Ports of Schleswig-Holstein to prepare logistical services for the offshore wind sector. This study, funded as part of the LO-PINOD and NSR program, elaborates the demand for such services as well as technical solutions to provide them and points out, how a Port Cooperation can benefit from synergies when offering such services.

The study “Port Operating Concept Offshore Ports North Sea Schleswig-Holstein” (“Konkretisierung des Hafenkonzepthes Offshore-Häfen Nordsee SH”) already outlined potentials for an offshore shuttle. Logistical services are demanded during the construction and operation of offshore wind farms. For the Port Cooperation this means a demand for the transport of components of offshore wind turbines and for the daily transport of service technicians and spare parts as well as the supply of service ports and installation vessels. This study seizes the transport demands elaborated and the suggestions made in the previous study and develops various operation concepts for an offshore shuttle.

In the present situation different transport services between ports of the cooperation are offered. The traffic is mainly caused by supply services for the North Sea islands Sylt, Amrum, Föhr, Pellworm and Helgoland. However, as Helgoland and Föhr can only be reached by ship, they are most suitable for integration in an offshore shuttle service. Especially for Helgoland the regular services are only offered during the summer period and thereby might be extended to the winter period as well.

The demand for transport services is generated by

- operators of offshore wind farms,
- manufacturers of wind turbines,
- service enterprises and
- network operators.

The analysis of the market structures has shown that the location of production sites and availability of good infrastructure are important preconditions for the probability of a port location to be integrated in logistic concepts or supply chains. The ports of Brunsbüttel and Rendsburg/Osterröfelfeld are well prepared to handle heavy lift cargo such as wind turbine parts. The manufacturer REpower has a production site at the port of Husum. Offering the client additional logistical services would give the Port Cooperation a unique selling proposition.

Important for the demand for an offshore shuttle are four aspects:

- point in time of the demand (construction and/or operation phase)
- goods to be transported
- required transport frequency (daily, weekly, as demanded)
- availability of the transport resources

More than 40 experts and companies from the offshore wind power sector were contacted to conduct interviews. The results show, that most of the demand will turn up during operation of the offshore wind farms. There will be time critical transports of service technicians as well as less time critical transports to supply service ports and sub-stations. The group of potential users prefers dedicated transport solutions, so that one vessel is exclusively used by one company to avoid interferences. Additionally, there will be some demand for the transport of wind turbine components, as they are too heavy for road transportation.

To facilitate those transports different vessel types are needed. Parts of the local fleet operated within the area of the Port Cooperation are suitable to be used as an offshore shuttle. All types of vessels, like passenger ferries, cargo vessels and tugs are available. However, there are some vessel types that are frequently used in the offshore wind sector.

So called Crew Transfer Vessels (CTV) can accommodate up to 24 service technicians and a small amount of cargo and can transfer them to the offshore wind farms at a high speed of up to 25 knots. CTVs are used when a fast transfer is required. Cargo vessels are needed to transport larger amounts of cargo and a higher number of service technicians. With their own cranes they are able to load and unload cargo themselves. They are typically used for less time critical supply missions. Other technical solutions have also been developed. The so called wind feeder barge can transport wind turbine components in shallow water as well as at high sea. The company NavConsult developed a special towed convoy for the transport of components as well as the Nav Offshore Tender for the transport of personnel and equipment.

Based on the aforesaid operation concepts are elaborated. In general, five options are possible:

- regular supply of platforms, sub-stations or other artificial islands
- daily supply of offshore wind farms
- demand orientated supply of installation vessels
- regular supply of service port Helgoland
- shuttle service between Rendsburg and Brunsbüttel for large turbine components

The regular supply of platforms allows involving several ports of the cooperation and might be combined with the regular supply of the service port Helgoland, as this service is not very time critical. Before implementing such a service it is crucial to monitor the competitive environment in the ports to avoid weakening the existing connections. The supply of installation vessels requires that the building materials are available at the chosen port. In general this concept can be applied to several ports of the cooperation.

Furthermore daily transport of service technicians to the offshore wind farms will be required. Currently the demand can only be estimated for Helgoland as a service port. As it is not clear at the moment if the operators of the wind farms will use their own resources or service providers, it is recommended to prepare a suitable concept and communicate it steadily to the market. The possibility to offer services for large wind turbine components in Rendsburg and Brunsbüttel mainly depends on the logistical concept demanded by the respective manufacturers.

To put the named services into effect an operator needs to be defined. Three options were analyzed:

- Port Cooperation as operator of a shuttle service (using shipping expertise available in the Cooperation)
- one member/location of the Port Cooperation as operator (e.g. Helgoland)
- outsourcing to a service provider

It turns out that no matter which option is chosen the Port Cooperation should concentrate their efforts on activities related to Helgoland, as three operators already announced it as service port for their offshore wind farms. Further calculations show revenue potential of € 9.4 Mio. p.a. for the operation of CTVs at Helgoland.

Offering an offshore shuttle service is to be seen as a long-term opportunity for the Port Cooperation. It has to be regarded that there are different models to establish an offshore shuttle. “Offshore Shuttle” does not mean one single transport solution involving all members of the Port Cooperation. It is crucial to increase the visibility of the potential services in the market steadily. The structure of the Port Cooperation is an ideal basis for offering an offshore shuttle service, as it bundles large logistics expertise and a wide range of services.