

ENERGY HUB

PORT OF HAMBURG MAGAZINE

PUBLIC AUTHORITIES, INSTITUTIONS AND COMPANIES WILL SPEND THE NEXT FEW YEARS IN CREATING AND ADVANCING A SUSTAINABLE ENERGY HUB.



Dear Readers,

In the Port of Hamburg, you can really feel a pioneering spirit towards change.

Public authorities, institutions and companies will spend the next few years in creating and advancing a sustainable energy hub. So, for the moment, our cover 'only' shows a simulation. Many programs are already being tackled; others have already been implemented by companies. The port is ensuring supply-readiness for Germany here, and further extending its importance. In an interview well worth your time, Dr Melanie Leonhard, Senator for Economics and Innovation, explains how this will be achieved.



With its 'Sustainable Energy Hub Hamburg', HPA – Hamburg Port Authority has launched a powerful initiative, designed to bring all the players closer together. In addition, the idea is that this should assist them in communicating with the authorities on authorization for projects. This will make it a decisive factor for rapid implementation of the sustainable energy hub.

Hydrogen is in future to play a very significant role as an energy source. Groups such as HHLA are therefore in the process of joining many partners in practical testing of this new resource. The article 'Cleaner All-Rounders' illustrates everything that is under precise scrutiny in the Clean Port Logistics Project.

Another element of the energy transition is LNG – Liquefied Natural Gas. Here it is especially our partner ports in the region, e.g. the Port of Brunsbüttel, that have moved into position. They are in the process of further expanding their capacities to ensure gas supplies in Germany. It is not only in the Port of Hamburg that intensive work is in progress on a more climate-friendly Germany. Projects for a climate-neutral future are rapidly underway at many HHM member companies outside the port.

You can read more about these fascinating topics in this number of Port of Hamburg Magazine.

Stay curious!

A handwritten signature in blue ink, which appears to read 'Axel Mattern'.

AXEL MATTERN
CEO Port of Hamburg Marketing

Contents

03 EDITORIAL

ENERGY HUB

06 ENERGY TRANSITION OFFERS GREAT OPPORTUNITIES FOR PORT OF HAMBURG

Interview with Dr Melanie Leonhard, Senator for Economics and Innovation

12 FOR A GREENER PORT

Hamburg Port Authority creates 'Sustainable Energy Hub' initiative

14 SIX QUESTIONS TO ...

Friedrich Stuhmann, CCO of Hamburg Port Authority

15 CLEAN ALLROUNDER

Clean Port & Logistics – CPL will accelerate market readiness for hydrogen technologies

20 AN ELECTROLYZER IS IN THE PIPELINE

In Moorburg, everything is being prepared for producing hydrogen

24 SHORE POWER FOR SHIPS

Hamburg creating preconditions for container vessels

28 LNG TO SUPPLY GERMANY

Brunsbüttel and Stade obtain LNG import terminals

32 CUXHAVEN FOCUSES ON ENERGY TRANSITION

North Sea ports want to establish themselves as pioneers with hydrogen

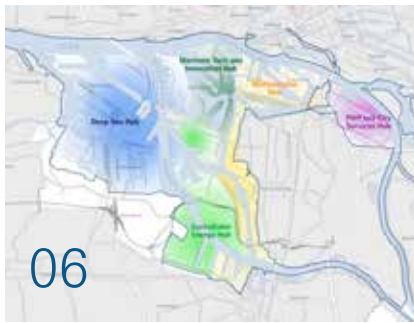
HAFEN HAMBURG MARKETING

36 PETER PICKHUBEN'S PINWALL

Tips and stories from Hamburg's cheekiest seagull

38 HHM INTERNAL

Three new projects for 'green' ports



WALLMANN & CO

DEUFOL SEAPORT HUB



Professionals at the waterfront

Handling and Warehousing

- ▶ General cargo
- ▶ Iron products
- ▶ Heavy lifts
- ▶ Steel products

Quay Operation and Warehousing

Wallmann & Co. (GmbH & Co. KG)
 Pollhornweg 31-39, D-21107 Hamburg
 Phone: +49(0)40-7 52 07-0



SCHRAMM
Ports & Logistics

FLEXIBEL & UNIVERSAL



17

HAFEN- UND LOGISTIKSTANDORTE IN
NORDDÉUTSCHLAND UND SKANDINAVIEN

Since December 2022 Dr Melanie Leonhard has been Dr Melanie Leonhard, Senator for Economics and Innovation of the Free and Hanseatic City of Hamburg



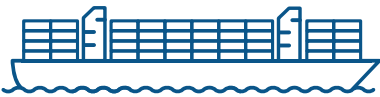
“Energy transition offers great opportunities for Port of Hamburg”

In this interview Dr Melanie Leonhard, Senator for Economics and Innovation explains how the Port of Hamburg wants to position itself going forward, to actively shape the transition for greater climate neutrality.

BY RALF JOHANNING

PoHM: In the new port development plan, sustainability and climate protection feature among the leitmotifs. How important are these two?

Dr Melanie Leonhard: Transporting cargo by sea belongs to the mode of transport with the lowest emissions – a ship sailing to Hamburg, replaces many hundreds, if not thousands, of truck tours. We have not only good preconditions, but also big



Transporting cargo by sea belongs to the mode of transport with the lowest emissions – a ship sailing to Hamburg, replaces many hundreds, if not thousands, of truck tours.

aims. In the new port development plan, sustainability and climate protection are therefore a high priority: It is our aim to make port operations climate neutral by 2040. In so doing, it is not only about Hamburg’s climate aims being extended

throughout the City-State, including the port: It is much more about climate protection being a relevant business factor for all players in the maritime industry and global logistics. In the coming years, CO2 emission rights will foreseeably become considerably more expensive. Resultingly, those with a smaller CO2 footprint, will have a commercial advantage. Moreover, investors, lenders and customers are focussing their decisions increasingly on sustainability and climate compatibility. This means that the implementation of climate protection measures and the path to CO2 neutrality are also a business case, enabling us to exploit the port’s strengths even more going forward.

Germany wants to be more independent of individual countries when importing energy resources. Added to this, a lot of raw material has to come to Germany. This makes the ports an important transshipment hub. What activities can the Port of Hamburg take on?

The port plays an important role in strengthening sustainable technologies and energy sources. To ensure energy supply-readiness especially for industry, going forward we are going to need different sources than fossil fuels. This role can be taken

on by hydrogen and its derivatives, becoming more significant in the future. In regions where a lot of energy is coming from renewable sources, hydrogen can be produced and transported to us. Import terminals in ports fulfil an important task for supply-readiness in Germany: Under our hydrogen import strategy, many announcements have already



Apart from this role, because of its excellent position and its good rail infrastructure, the Port of Hamburg will additionally continue to play a key role as a strategic hub for the whole of North Germany.

been made for import terminals. In addition, in the coming years, the interface to the hydrogen pipeline HyPerLink I should be ready. With its interface to HyPerLink III, this will provide tremendous potential for hydrogen imports from Denmark.

What opportunities exist over and above transshipment?

Apart from the import of renewable energy, it can be produced in the port too, for example by wind farms and photo-voltaic units on roofs and warehouses. Apart from this role, because of its excellent position and its good rail infrastructure, the Port of Hamburg will additionally continue to play a key role as a strategic hub for the whole of North Germany. It will also play an important role as a all-purpose port and important industrial location, not only for transshipment but also for production, processing and as a logistics hub. In addition, on the site of the disused Moorburg coal-fired power-station, in the middle of the Port of Hamburg and/or industrial zone, a central electrolyzer is developing, initially producing 100 MW, but with the potential for up to 800 MW going forward.

For which energy resources is the Port of Hamburg already prepared?

In Hamburg there has been a long tradition of handling energy resources. In the past these were above all fossil fuels. We can call on this experience, and we have a well-developed infrastructure, which we

can re-equip and use for other sources of energy. This includes terminals and pipeline systems. We intend to use and build on this solid foundation.

Can you give us a concrete example of this?

During 2022, a partnership was agreed between Air Products and Mabanaf, with the aim of setting up a modern import terminal for green energy in Hamburg. This terminal, which from 2026 onwards will be located at Mabanaf's existing tank farm, marks an important step in the direction of green ammonia as a future-oriented energy resource and as a suitable carrier-material for the import of green hydrogen. Liquid ammonia, which exhibits an especially high hydrogen storage-capacity, should be transported to the Port of Hamburg, with the terminal infrastructure being aligned and extended. In addition, Evos Hamburg and the Lothar Group are cooperating, as part of the 'Hamburg Blue Hub', from 2026 onwards, to establish facilities on Evos Hamburg's premises to import and store e-methanol, e-fuels, HVO and e-diesel; in the course of time the development of hydrogen and its derivatives, too. This will assist in building up Hamburg as a central distribution centre in Europe. For the port itself, the new types of energy will play a role, for example, with ship bunkering.

You spoke about the 100 MW electrolyzer on the former Moorburg site. How far has this project progressed?

Project progress for the 100 MW electrolyzer in Moorburg is promising, with the project consortium on a very solid base. Within the framework of the 'Important Projects of Common European Interest – IPCEI', on the topic of hydrogen, at the beginning of next year, we are expecting a funding commitment, the permit for an early start on all measures has already been issued. In addition, all necessary preparations are already being made to initiate a scaling up of the initial output of 100 MW to a probable output of up to 800 MW. The hydrogen that will be produced in the Port of Hamburg, will equally be in the IPCEI hydrogen, reaching consumers via the promoted planned local distribution network HH-WIN. It will also service the supra-regional core network HyPerLink I, that when expanded to North-Rhine-Westfalia and the interface to the European network structures, will ensure its integration in the entire market.

The entire energy transition and decarbonization are currently very popular catchphrases, with the

transformation of the ports striding ahead throughout Europe. How do the Port of Hamburg business world and Hamburg Port Authority – HPA intend to face these challenges, to position the Port of Hamburg appropriately?

The energy transition offers great opportunities for Hamburg. The transshipment, production, distribution and use of sustainable fuels and energy resources presents itself as a growth market with great potential. Already today, the Port of Hamburg is itself an energy producer, further expanding it going forward. Over and above that, the import of energy resources for Germany's energy-supply readiness is altogether elementary.

We want to expand a part of the port as a 'Sustainable Energy Hub'. It should be developed as a supporting pillar of the all-purpose Port of Hamburg. HPA has created PES – Port Energy Solutions division, pooling responsibilities and projects encom-

passing the Sustainable Energy Hub, expansion of renewable energies, as well as shore-based power and electrification. This is bringing together port companies, building business relations, and underlining the importance of the Port of the Port of Hamburg as an energy port. Port sites, particularly in the area of Hohen Schaar are being earmarked



Port sites, particularly in the area of Hohen Schaar are being earmarked for sustainable energy resources, as well as expanding renewable energies in the Port of Hamburg.



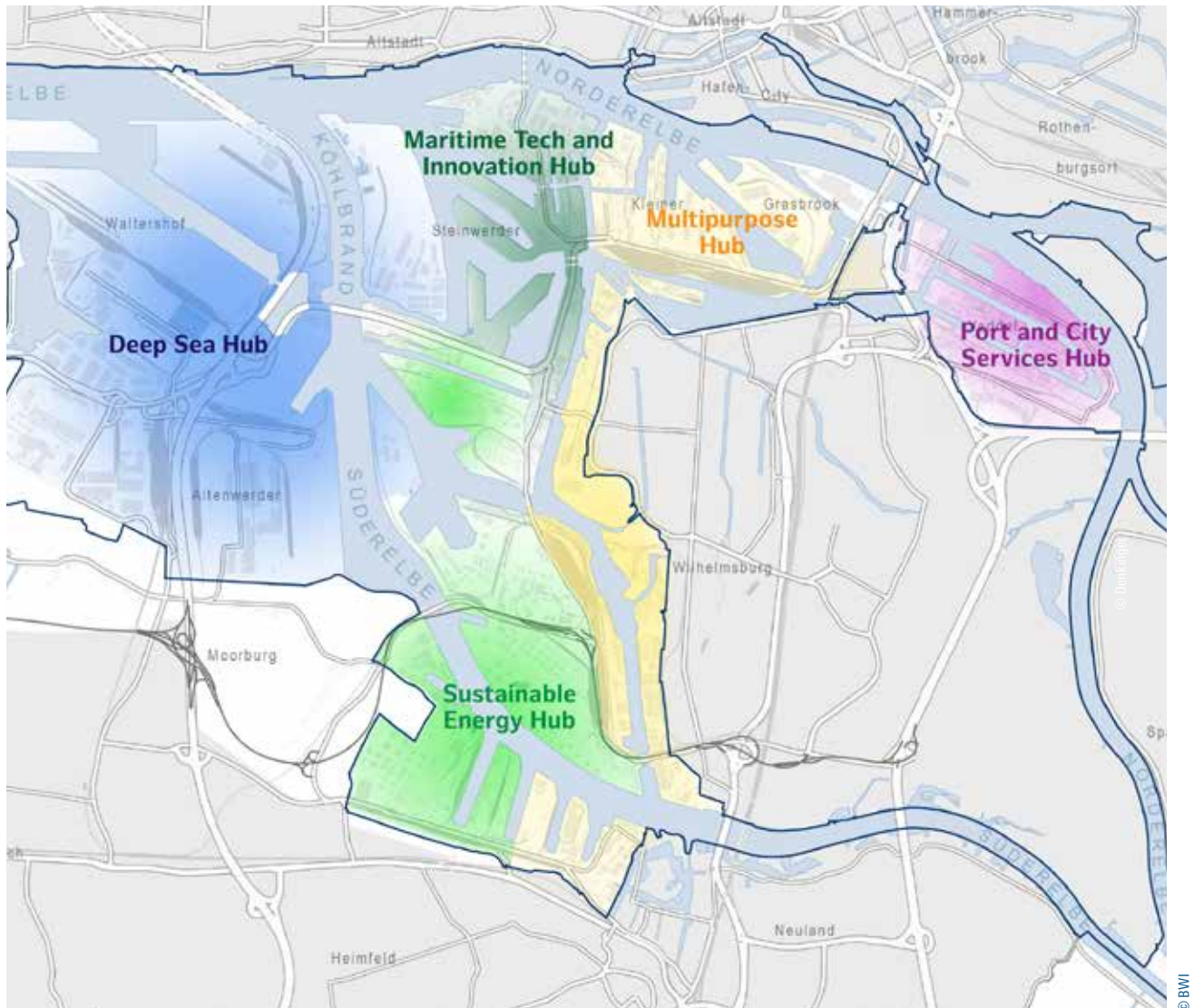
THE WORLD IS OUR WORKPLACE

MSC offers sustainable and reliable transport services by road, rail and sea. We not only transport goods, we connect people and continents. Do you have a passion for shipping? Are you looking for a new challenge? Visit our Careers page at [msc.com](https://www.msc.com) to apply.



MOVING THE WORLD, TOGETHER.

Area definitions in new Port Development Plan



for sustainable energy resources, as well as expanding renewable energies in the Port of Hamburg. We are pushing ahead with developing premises for handling, storage and processing of energy resources: We support the transformation of companies in the port with suitable sites and by spatially pooling future-oriented activities. Companies operating in the field of renewable energies will be given priority for settlement.

Shore-based power for vessels is very important for a City like Hamburg, facilitating a great reduction in ship emissions locally. How far advanced is shore-power in the Port of Hamburg?

With its shore-power supply, Hamburg is leading the field across Europe. With the shore-power unit for cruise vessels at Cruise Center Altona, since 2016, there has been an offering for environ-

ment-friendlier energy supply involving pioneering work and gaining a great deal of experience.

Additionally, we are going ahead with building up the shore-power infrastructure, providing even more vessels with power during their lay-time in the Port of Hamburg. In the coming year, together with our shipping partners, we are going to make great steps. It's important for us that the power used is from renewable energy – being 100% the case in Hamburg. At the same time, we know that the shipping fleets need shore-power to be handled in a unified manner: Availability has to be across the board and its application technically unified as far as possible. Consequently parallel, we are making efforts to intensify our partnerships with the European ports, to establish the conditions to improve the acceptance of shore power for sea-going vessels.

What are the upcoming targets, step-by-step?

A further step that is now due is commissioning the unit in Steinwerder, followed by building up shore-power units at the container terminals in Altenwerder, Burchardkai, Tollerort and Eurogate. In addition, we are equipping the Cruise Center Steinwerder and HafenCity with shore power. A further decisive role, when making emission-free energy available to less frequented berths, is the provision of mobile platforms. We are investigating this possibility.

Parallel to this, HPA is in the process of decarbonizing its fleet – both vehicles and vessels. Where does the port administration stand on this?

Since 2017, 'Fleet Hamburg' has been pooling all of our city's watercraft, making very good progress with numerous measures. The five pillars in our strategy are 100% use of innovative fuels, using catalytic converters and particle filters for all fleet newbuildings: We are

refitting the existing fleet with exhaust after-treatment, further testing innovative drive technologies and training our crews to in energy-efficient sailing. This has led to reducing quite some emissions. ■

Dr Melanie Leonhard

Since December 2022 Dr Melanie

Leonhard has been Senator for Economic of the Free and Hanseatic City of Hamburg.

Prior to this, she was Senator for Labor and Social Welfare for several years. Her political career began back in 2004 as a member of the district assembly in Harburg. Since 2018 she has been state chairwoman of the SPD in Hamburg. The 44-year-old studied social and economic history economic history. She also received her doctorate in this subject in 2009.



© Daniel Reinhardt



Customs Solutions

Meine Checkliste für eine gute Zollagentur:

- ☑ rechtskonforme Zollanmeldungen
- ☑ persönliche Ansprechpartner & gute Erreichbarkeit
- ☑ automatisierte Prozesse und Schnittstellen
- ☑ schnelle Abwicklung und hohe Fachkompetenz
- ☑ exzellente Reputation
- ☑ konzernfrei und neutral
- ☑ auch bei Wechsel meines Spediteurs verfügbar

www.ip-cs.de

+49 40 333976 0



We're all

about customs

For a greener port



Jannes Elfgem, HPA head of Port Energy Solutions, Senator Dr. Melanie Leonhard and HPA CCO Friedrich Stuhmann (l-r) presenting the Initiative

The Hamburg Port Authority has started its ‘Sustainable Energy Hub Hamburg’ initiative. It should help make the construction and transformation of a part of the port for sustainable energy a success right from the start.

BY RALF JOHANNING

Hamburg port is facing a mammoth task. A task, which should make way for a climate-neutral future – and not only for the port and the city, but also for a large part of Germany and Europe. For this purpose, the City of Hamburg plans to transform a large part of the Port of Hamburg into a sustainable

energy port. “With its Port Development Plan 2040, the senate has determined to use the opportunities and challenges of the energy transition to develop a ‘Sustainable Energy Hub’ as a cornerstone of the all-purpose port Hamburg,” says Senator Dr. Melanie Leonhard.

In order for this development to proceed as effectively as possible, the Ministry for Economics and Hamburg Port Authority – HPA officially started the ‘Sustainable Energy Hub Hamburg – SEH’ initiative at the beginning of October. Many companies are participating that are already located in Hamburg, like Mabanft, Hamburger Hafen und Logistik AG – HHLA, EVOS, Air Products, Green Ports Hamburg, Hamburg Energiewerke (energy supplier), Gasnetz Hamburg (gas supplier), Shell, Holborn, H&R Schindler, LOTHER GROUP, Energie Hub Moorburg GmbH, and Hamburg Green Hydrogen Hub. “The fact that so many companies are joining, shows that this is the right way,” says Leonhard.



According to the national hydrogen strategy, the demand for hydrogen is expected to be around 130 TWh per year for Germany by 2030.

Accordingly, the initiative has first of all set the goal to make for better networking among the port companies. Secondly, it wants to emphasise the meaning of the Port of Hamburg as an energy port for public awareness stronger, as the transition to sustainable energy will be the dominant issue for the coming years and decades. “With this initiative we want to create an ecosystem that makes cooperation within the Hamburg Port easier,” Friedrich Stuhmann, Chief Commercial Officer for HPA, points out. For example, it should be possible to coordinate infrastructure needs among all players. For this purpose, information will be exchanged, win-win projects identified, and network expansion planned in terms of schedules and requirements. This way, the companies can leverage synergies and coordinate their interests.

The schedule has become very tight in the meantime. According to the national hydrogen strategy, the demand for hydrogen is expected to be around 130 TWh

per year for Germany by 2030; this demand will have to be covered to 70 percent by imports. This means, the demand will rise massively. The Port of Hamburg provides the best conditions to play a leading role here: Berth spaces, high-voltage lines, motorways – a great part of the infrastructure is already there. More measures will follow. “We will push forward the land development in a core area of the Port of Hamburg for handling, storage and processing of energy carriers. We want to support the transformation of the Port of Hamburg with suitable sites and the spatial concentration of future activities,” says Friedrich Stuhmann, Chief Commercial Officer at HPA.

Geographically, the Sustainable Energy Hub will be located to a large extent in the port areas: Neuhof, Hohe Schaar, Moorburg, and Harburg, with large-area industry and transshipping companies with good network infrastructure and sufficient distance to residential areas. The starting point for implementation will be the site of former storage tanks on Hohe Schaar acquired by HPA. “Here storage, processing and refining will take place, and relevant supplier companies, service providers and manufacturing companies for plant and technical equipment for sustainable energy carriers should locate here,” explains Jannes Elfgen, Head of Port Energy Solutions at HPA and in charge of the initiative.

At the same time, HPA wants to help companies within the initiative develop new projects within the scope of the Sustainable Energy Hub. “We want to provide support for early identification and involvement of stakeholders like harbour police, firefighters, and the approving authorities on site,” says Elfgen. Furthermore, it can make the transformation process easier by performing preliminary tasks for feasibility studies regarding nautical restrictions and safety distances. In addition, HPA can provide for the connection of stakeholders and companies beyond the SEH and, in doing so, foster the implementation of an integral hydrogen value-chain and a life-cycle approach.

Moreover, locating companies working in the field of sustainable energy carriers should be prioritised. ■

Six questions to ...

Friedrich Stuhmann, CCO of Hamburg Port Authority

Herr Stuhmann, with the SEH – Sustainable Energy Hub you have launched an initiative aimed at assembling many players. How can you succeed in combining and bringing together numerous interests?

We aim to be familiar with the needs of the partners in the Sustainable Energy Hub and understand these better. The idea is also for the partners to have an additional platform with each other for exchanging ideas, discussing opportunities for cooperation and infrastructure requirements. There is great interest among the players in an exchange, even if at the end of the day each of them needs to keep an eye on the profitability of their own projects.

Which initial milestones do you envisage for SEH?

One of these will certainly be the entry into service of the import terminal for sustainable ammonia from Mabanafit and Air Products. At present this looks like being in 2026. Further steps will be the taking into service of the import terminals for sustainable methanol by EVOS and Lothar Group, along with hydrogen production by electrolyzer at Hamburger Energiewerke – both also probably in 2026.

Which other companies would you like to see involved in the initiative?

We should like to see the initiative expanded with potential large customers for new energy in the port. Similarly, we should be happy to involve shipping companies that transport new energies by ship and use these for ship propulsion.

What significance do you attach to the initiative – not exclusively for the Port of Hamburg, but also for Germany?

Germany requires tremendous quantities of renewable energy. A high proportion will be imported. The Port of Hamburg is already an important energy port. The Sustainable Energy Hub initiative boosts the transformation into operation without fossil energy in the Port of Hamburg, and therefore supply-readiness for Germany.

Hydrogen and its derivatives are crucial, not just for generating energy, but also the for the processes of extremely important chemical and basis material in-

dustry. Supplying the sector with sustainable raw materials is a job for the ports.

Players in the Port of Hamburg cover the entire added-value chain for new energies, from generation and import, via further processing, consumption, research & development, and logistics.

Is there a schedule for implementation of the Sustainable Energy Hub?

The sustainable hub consists less of a project than a lasting, continuous process. This can only be completed when fossil energies are no longer of any significance.

Are German ports experiencing adequate support from central government for such initiatives, but also generally?

Many schemes depend on official funding. Central government funding is already in prospect for the electrolyzer, construction of a hydrogen pipeline network and its use, especially in steel production, and will be urgently needed for developing the market. We are assuming that the Federal government will make these funds available.



Friedrich Stuhmann
CCO of Hamburg Port Authority



Clean Allrounder

Research project: The hydrogen innovation cluster Clean Port & Logistics – CPL is fostering accelerated market maturity for this technology.

BY NICOLE DE JONG

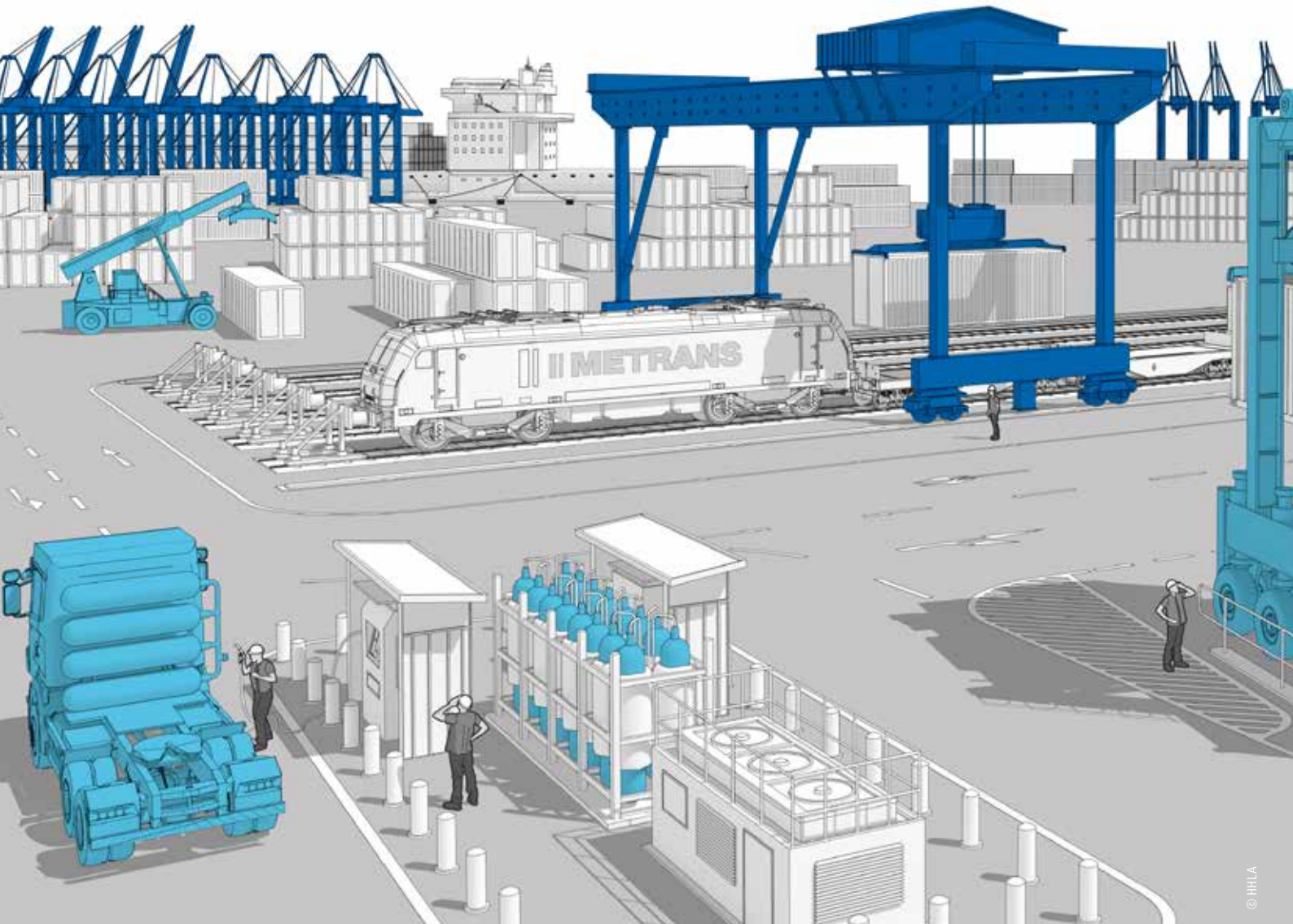
“Water will be the coal of the future,” Jules Vernes wrote already in 1870 in his book “Mysterious Land”. In fact, water is crucial for energy supply and will become more and more important when it comes to generating energy. The key word is hydrogen: it acts as an energy carrier and can be generated from water using renewable energy sources like solar and wind. The use of hydrogen allows the transformation of the German industry as well as the truck, maritime, and air traffic in a climate-friendly way, as it says in the German Government’s National Hydrogen Strategy. Germany wants to be climate-neutral by 2045, with German industry and economy are going along.

Hamburger Hafen und Logistik AG – HHLA is also aligned. HHLA will play a leading role when it comes to hydrogen and has set the aim for itself to become climate-neutral by 2040. With the Clean Port & Logistics – CPL project, HHLA, together with about 50 par-

ticipating companies, promotes market maturity of the hydrogen technology by applying it in everyday operations. With funding provided by the Federal Ministry for Digital and Transport within the scope of their National Innovation Programme Hydrogen and Fuel Cell Technology, the cluster boosts the decarbonisation of handling and transport processes. A part of the tasks also comprises testing of hydrogen-powered equipment in port logistics. “The aim of our work is to speed up on achieving market maturity for hydrogen technology by using such equipment in everyday operations,” says Janne Oeverdiek, Manager Clean Port & Logistics Innovation Cluster.

For this purpose, companies from container and port logistics as well as manufacturers of vehicles and handling technology, hydrogen producers, universities, and research institutions work together within the CPL. The partners are from all over Europe, Asia, and South

How HHLA foresees its climate-neutral terminals



© HHLA

as well as North America. One huge benefit from working together within the innovation cluster is that experiences and results can be exchanged directly and personally among the cooperating partners. They explore and test in practice how hydrogen may be used effectively to supply port technology and logistics. For this purpose, the cluster conducts simulations and examinations and prepares concepts for education and training. As a centre of activities, a test field is set up for hydrogen-powered devices and port logistics at the HHLA Container Terminal Tollerort – CTT in Hamburg.

Together with Linde Engineering, HHLA builds a hydrogen refuelling station as part of the test field to refuel hydrogen-powered heavy goods vehicles and terminal devices and test them during operation. The refuelling station is likely to start operating at the beginning of 2024. The core of this refuelling station is

an energy-efficient high-pressure ionic compressor that compresses hydrogen to up to 450 bar. This can be used to refuel equipment such as straddle carriers, empty container handlers, forklifts, terminal tractors, and trucks efficiently with hydrogen.

The delivery of the first hydrogen-operated empty container handlers and terminal tractors has already been agreed upon with the Hyster Yale Group, Inc. that develops and produces cargo handling equipment. The equipment is powered with fuel cells by Nuvera. The delivery of such equipment will start as of the second quarter of 2024. "In addition, Konecranes, Kalmar, Linde, and Gassin represent more manufacturers of cargo-handling equipment, who are interested in examining their prototypes on the test field," Oeverdiek explains. The Cluster will prepare the tests and evaluate them subsequently.



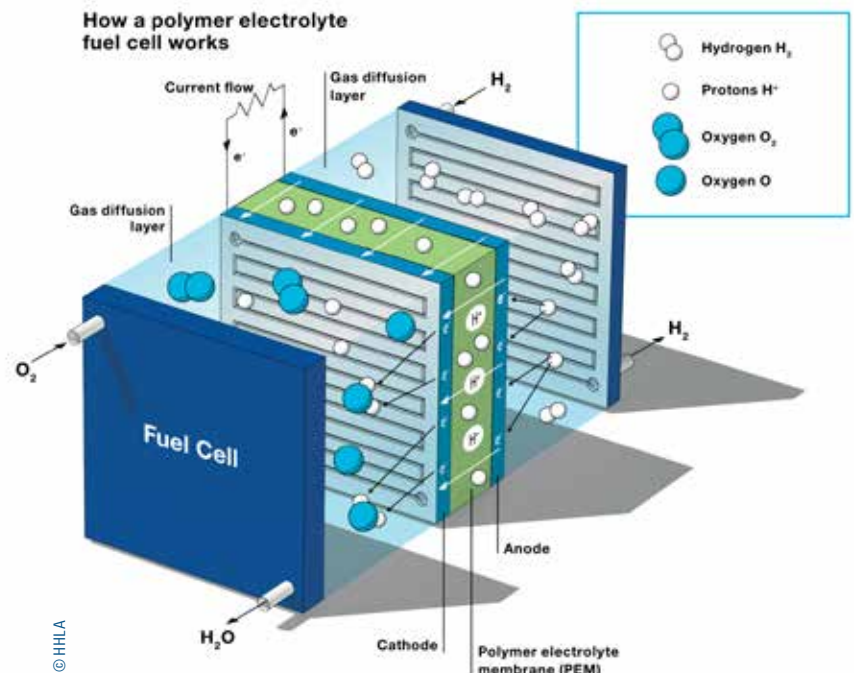
The station is likely to start operating at the beginning of 2024.

emission-free straddle carriers as well as automatic guided vehicles – AGVs operated e.g. at HHLA Container Terminal Altenwerder – CTA. “Today, these vehicles are battery-powered, within the scope of our cooperation with the Cluster, we will also use hydrogen.” One first hydrogen-powered straddle carrier is expected to be ready for operation in the course of next year.

Some of the partners have already gained experience with hydrogen. Air Products, with its German head office based in Hattingen/Ruhr in North Rhine-Westphalia considers itself the greatest sup-

All companies participating in the Cluster are motivated to make their contribution in order to achieve environmental targets and supporting the energy transition with hydrogen. Konecranes Noell, for example, is located in Wuerzburg and specialised in development, production and servicing of straddle carriers for container terminals all over the world. “Konecranes not only provides advice to the cluster, but, together with HHLA, also intends to provide a practical proof for reliable and economic decarbonised container handling by means of straddle carriers,” says Managing Director Hubert Foltys.

Konecranes emission-free container handling equipment is already being used in several ports of the world. This includes





© HHLA

plier of hydrogen in the world and has been supplying customers in the Northern German region from Stade in Northern Germany for many years already. According to its own statement, Air Products wants to provide support to companies within the cluster for a simple and safe changeover to hydrogen, particularly in the mobility sector. The company is said to be a pioneer in the field of hydrogen refuelling.

BTE, located in South Korea, is specialised in making and developing hydrogen refuelling stations and utilise hydrogen fuel cells for micromobility. As the company stated, it is participating in the cluster to examine the performance of its products. With its membership, BTE also hopes to get access to the European hydrogen market.

The Spanish Fundación Valenciaport, that is an Applied Research, Innovation & Training centre, wants to share its findings and results with the port community in Hamburg and explore further possible ways to integrate hydrogen technologies in the port and maritime transport sector. Fundación Valenciaport, located in Valencia (Spain) coordinates H2PORTS, a project testing a fuel-cell-powered reachstacker as well as a fuel-cell-powered yard tractor by running the equipment on a daily basis during two years of real operational port activities. In doing so, it wants to analyse possible ways of improving the energy efficiency, per-

formance and safety of operating port equipment powered with fuel cells.

Other partners hope to gain deep insights in hydrogen issues, like, for example, CMR Container Maintenance Repair Hamburg, which is a subsidiary of Hapag-Lloyd and operates an empty container depot for shipping companies and container leasing companies at the port. CMR stores, repairs and handles sea containers and intends to use hydrogen-powered large-scale equipment in the future. From its participation in the cluster CMR expects support in making the best possible decision regarding the procurement of future large-scale equipment as well as to obtain information regarding the refuelling of the equipment with hydrogen. Furthermore, CMR is interested in the exchange with other members.

“Container Terminal Altenwerder – CTA in Hamburg is already certified as climate-neutral today,” says Oeverdiek. The terminal shows a high degree of automation in container handling and ensures efficient discharging and loading of large containerships by using most advanced technology and innovative EDP systems. At CTA, battery-powered handling equipment is operated especially. The experience gained here is compared to the hydrogen test results at CTT, for example, to create robust foundations for decision-making for all those companies that aim to achieve ambitious climate targets. ■

IHR RÜCKENWIND ZUM ERFOLG!



Otto Wulf
Seit 100 Jahren

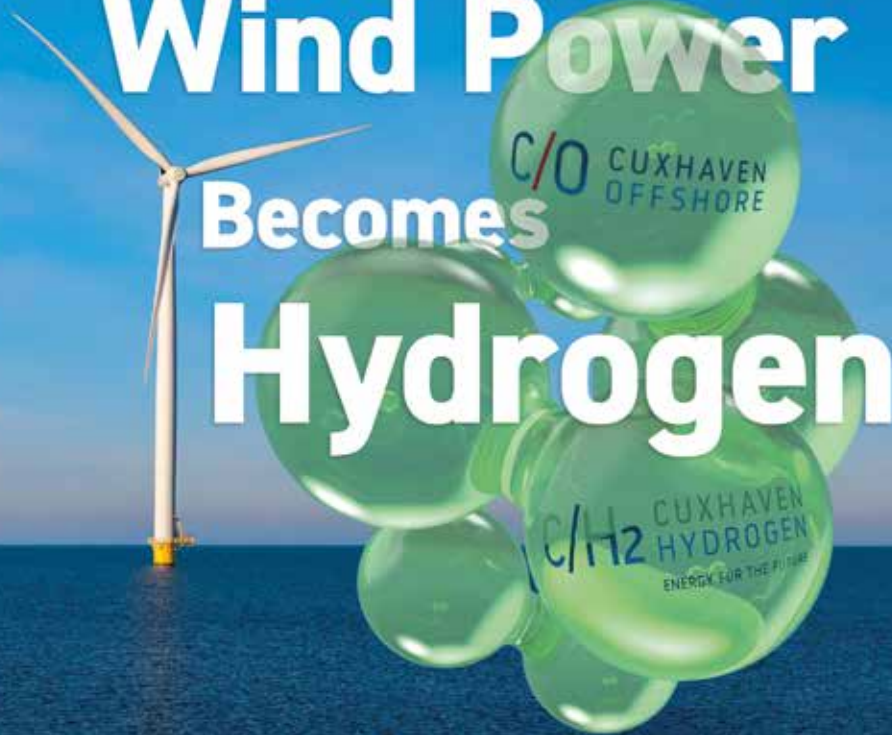


Otto Wulf GmbH & Co. KG Cuxhaven
Helgoländer Kai 10 | 27472 Cuxhaven
Tel.: +49 4721 7166-0

Otto Wulf GmbH & Co. KG Branch Office Rostock
Alter Hafen Nord 210 | 18069 Rostock
Tel.: +49 381 66096494

INFO@WULF-TOW.DE
WWW.WULF-TOW.DE

Wind Power Becomes Hydrogen



In the long term, commercial transport will not be able to be supplied exclusively with electricity. Hydrogen as an additional energy carrier is therefore essential.

If you add wind power to its production, you get green hydrogen, a central component of the German energy transition.

The German Offshore Industry Center Cuxhaven (DOIZ) already offers an infrastructure tailored to the wind energy sector. This will be expanded and further developed and optimized for the handling and production of hydrogen.

Be part of it! Find out more or let us advise you.

Find more information
and contact persons
under
en.offshore-basis.de

Our film about the
DOIZ gives you a first
impression.



Agentur für Wirtschaftsförderung



Aktiv für die Wirtschaft!

Economic Development Agency
Kapitän-Alexander-Straße 1
27472 Cuxhaven, Germany
phone +49 (0) 4721 / 599-60
e-mail wasserstoff@afw-cuxhaven.de

In collaboration with

C/H₂ CUXHAVEN HYDROGEN **C/O CUXHAVEN OFFSHORE**



An electrolyzer is in the pipeline

With the production of hydrogen in Moorburg, Hamburg should become one of the leading hydrogen sites in Germany and Europe.

BY CLAUDIA BEHREND

For this purpose, a 100-megawatt electrolyzer is planned among other things. The Hamburg Green Hydrogen Hub consortium recently reorganised and also applied for EU funding.

SPD Hamburg and the Green party had already agreed in their coalition contract in June 2020, that the feasibility of connecting sectors and establishing hydrogen production at the Moorburg site should be checked and promoted. In April 2021, Mitsubishi Heavy Indus-

tries, Shell, Vattenfall, and Hamburger Energiewerke – HEnW signed a letter of intent on a 100-megawatt electrolyzer to be built there.

The first confirmation for the four partners arrived at the end of May 2021, when the hydrogen project Hamburg Green Hydrogen Hub – HGHH as one of 62 projects made it to a shortlist of the Federal Ministry of Economy for funding within the scope of the EU programme 'Important Projects of Common European Interest' – IPCEI.

Hydrogen will soon be produced on the site of Moorburg power station



Last year in March, a feasibility study was concluded, which had been awarded under the leadership of the Hamburg Authority for Economy and Innovation in close cooperation with the Authority for Environment, Climate, Energy and Agriculture. The result: Electrolysis for the production of green hydrogen at the Moorburg site with a capacity of up to 500 megawatts is economically and technically feasible. Parts of the existing power station infrastructure offer outstanding conditions for putting up an electrolyzer. This might be assembled simultaneously with the power station disassembly and subsequently be expanded. In addition, the timeline within the scope of the IPEIC funding procedure with commissioning of the station by 2026 was considered realistic.

WITHDRAWAL OF SHELL LEADS TO REALIGNMENT OF THE CONSORTIUM

This year in February, Shell decided to leave HGHH. However, this was not due to the hydrogen business, which has not only been important for the company in the past with the building of electrolyzers for green hydrogen at Shell Energy and Chemicals Park Rheinland (Refhyne I, Wesseling) and in Zhangjiakou (M4, China), but will also play a key role in the future. For example, the company is currently building “Hydrogen 1” in Rotterdam, which, with its 200 megawatts power is the largest electrolyzer in Europe, and is working on several projects in earlier stages all around the world at the same time.

According to a spokesperson, the hydrogen project in Moorburg was not cancelled in order to implement the electrolyzer in Rotterdam, though. In every project development case – in Hamburg too – all requirements are checked in detail with great effort, before decisions are made, from technical aspects, safety and regulations, over support of interest groups to financial aspects.

With the knowledge gained over the past two years and the comparison with similar aspects of other Shell hydrogen projects, the company has drawn the conclusion to back out of the Hamburg Green Hydrogen Hub in Moorburg and to withdraw from the HGHH consortium as a consequence, to free up capacities for other Shell hydrogen projects.

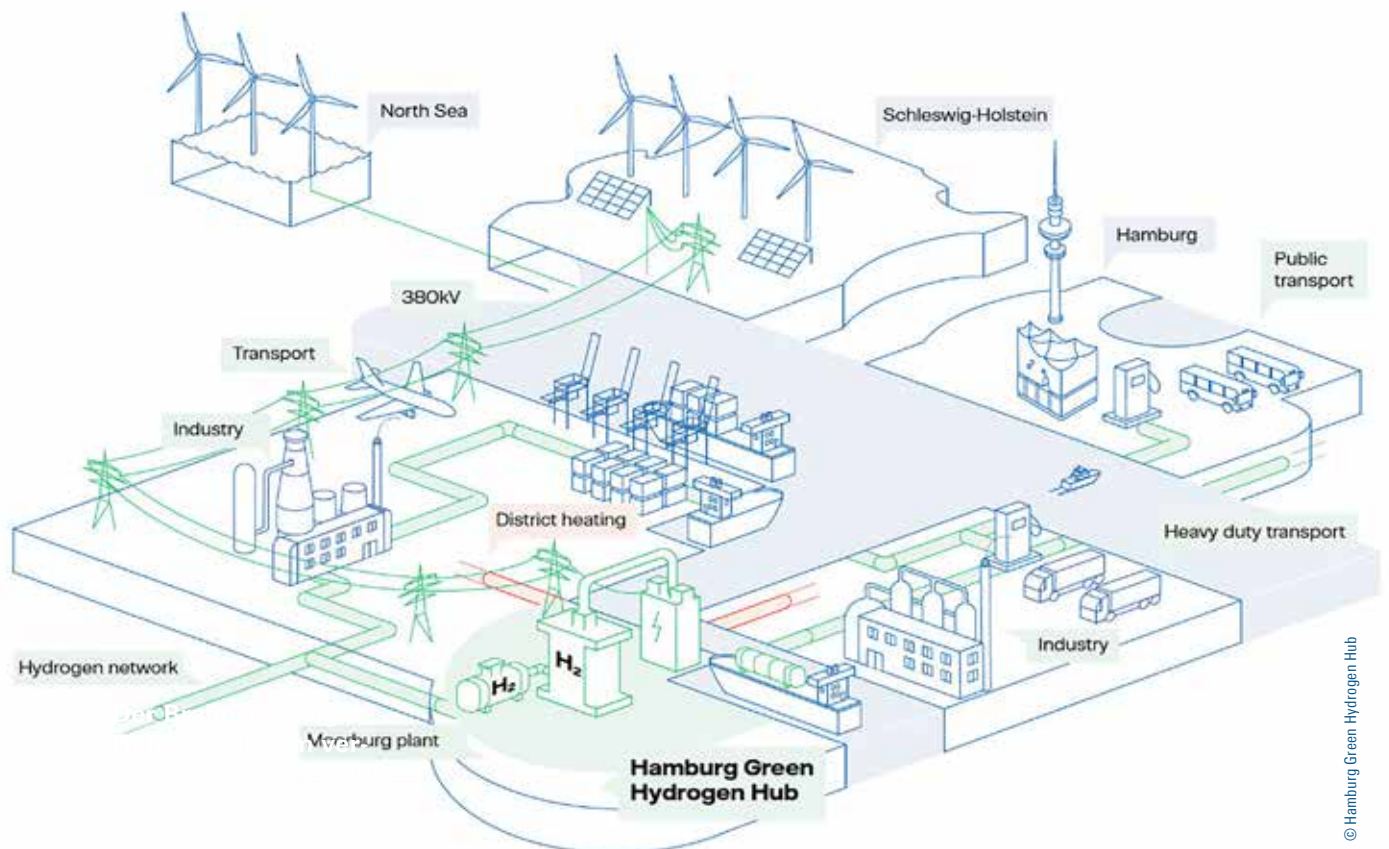
“It was not an easy decision for us and we are aware that it is a disappointing moment for HGHH and Hamburg,” says a spokesperson for the company. “Nevertheless, we still think Hamburg is an excellent site for a hydrogen hub, which will also be an important element in our strategic considerations and planning for developing the hydrogen economy in the future.”

DECISION ON IPEIC FUNDING REQUEST EXPECTED BY THE END OF THIS YEAR

When the IPEIC funding application was handed to the Federal Government, for which the notification process is expected to be concluded by the end of this year, the company consortium for Hamburg Green Hydrogen reorganised again in September: since then, it has consisted of HEnW and Luxcara.

The Hamburg company Luxcara is taking over – in case the Federal Cartel Office agrees – the shares of Shell and Mitsubishi and will then hold 74.9 percent.

Hamburg Green Hydrogen Hub



Mitsubishi however offered to remain as project partner for HGHH and only left the consortium with regard to shareholders' equity.

This year in March, HEnW had already bought the former Vattenfall Powerplant Moorburg company and acquired the corporation with its employees, buildings, and remaining components as well as the pertaining site at Moorburger Schanze.

With Luxcara, a partner has entered the consortium, bringing a lot of expertise with complex and sustainable energy infrastructure projects: "Since 2014, Luxcara has been relying on renewable energy projects, which are profitable without feed-in remuneration," Managing Partner Alexandra von Bernstorff reports. "For this reason, today we are one of the greatest independent green power producers in Europe." One example for this is the building of the onshore wind park 'Önusberget' in Sweden, which is one of the greatest onshore wind parks in the EU with 750 megawatts and entered into full service in June 2023.

Unsubsidized green power is required to generate green hydrogen. "For this reason, we have been of-

fered many of the European hydrogen projects for the past two years and have a deep insight into the market."

As one of the first companies, Luxcara has built on long-term special energy-supply contracts regarding renewable energy. In doing so, the company has been able to establish market standards and make Power Purchase Agreements – PPAs bankable. "On the one hand, these long-term purchase or supply agreements provide for safe turnovers for the producer of green energy: On the other hand, the electricity consumer does not only get a stable energy price, but also the proof of green energy at the same time," von Bernstorff continues.

With more than ten years of experience in the PPA/power market, they know what is important in terms of energy infrastructure projects. "In Moorburg green hydrogen will be produced, which is defined by the delegated legal act of the Renewable-Energies Directive," von Bernstorff explains. "As a consequence, the HGHH project must contract PPAs, which follow the power-generating profile of renewable energies." A deep understanding of green power and PPAs is

therefore essential to produce green hydrogen. Luxcara's expertise thus brings great benefits for the project and the hydrogen consumers.

"From our point of view, the HGHH project is one of the best hydrogen projects in Europe," von Bernstorff emphasises. The Hamburg-Moorburg location is unique: "A large part of the existing infrastructure can still be used and potential customers are the direct neighbours in the port, with whom the project is directly connected via the Hamburg hydrogen industry network." The team has been closely watching the project for several months and has been interested in joining it for some time; regardless of the participation of Shell and/or Mitsubishi. "With its extensive experience in sustainable energy infrastructure projects, Luxcara has asserted itself as a consortium partner against other interested parties," says von Bernstorff.

Despite the change within the consortium, everything is going according to plan: "We are currently waiting

for the confirmation of the IPCEI funding, so we can place the order for the electrolyzer," the spokesperson of Hamburger Energiewerke reports. "All preparatory work is processed according to plan, so the electrolyzer can start with production in 2026." Now all necessary steps have been taken to push ahead with the hydrogen ramp-up in Hamburg. In addition, disassembly work is done on the premises, so that the site can be prepared for the setup of hydrogen infrastructure in a next step. ■

Alexandra von Bernstorff
Managing Partner at Luxcara



© Luxcara

"HGHH project is one of the best hydrogen projects in Europe"

Climate-neutral by 2040

Guide to a climate-neutral future

Tomorrow's logistics must be sustainable.

Hamburger Hafen und Logistik AG is rising to this challenge. We take our responsibility for society, the environment and our employees seriously. As a leading European logistics company, we are helping to shape a sustainable future for logistics. To do this, we are reorganising transport and data flows as well as complete working processes based on innovative, energy-saving technologies.

One of our goals is to operate climate-neutral by 2040 at the latest.

Find out more about sustainability here





At CTH third test run also successful. 'APL Boston' received shore power for two hours

Shore power for ships

The Port of Hamburg has the lead in shore-based power supply for container vessels and cruise ships within the EU. As the first EU port, it is now also creating the conditions for container vessels to turn off their diesel generators during lay-time.

BY STEPHANIE LÜTZEN

In the Port of Hamburg, the shore-power initiative is entering the next phase. The operator, Hamburg Port Authority – HPA is going to extend the power supply network to all large-emitters. Hanno Bromeis, Head of Port Energy Solutions, who is in charge of these power units delineates: “This comprises the four large container terminals Eurogate, Burchardkai, Tollerort, and Altenwerder as well as Steinwerder and HafenCity cruise centers. When the first power sub-station enters into service in 2025, with ten shore-power connectors for container vessels and four connectors for cruise ships we will have the large-emitters in these two ship categories completely covered.”

The sub-stations will be commissioned with the manufacturers Siemens and PowerCon very quickly within the coming months. Bromeis specifies: “2024 will be our ramp-up phase, in which we want to additionally check the operating processes and improve them based on practical experience. As from 2025, we will be able to cover the expected demand with an optimised complete system.”

Back in 2016, Hamburg already started with a first pilot unit for shore power in Altona. Located in the heart of Hamburg, it provides for zero emission of cruise ships, during lay-time. Neither air pollutants nor greenhouse gases, nor noise emissions occur.

USE WILL BE MANDATORY EU-WIDE AS OF 2030

The acceptance of this offering initially depends on the shipping companies. Only from 2030 on, the use of shore power will be mandatory all over the EU for container vessels and cruise ships with a gross tonnage – GT of more than 5,000. From that date, any combustion processes at berth are also excluded. Together with other ports of the North Range, Hamburg wants to take a close look on how the commissioned stations will be utilised within the next few years and take accompanying measures already in advance, if necessary. In order for the port to completely fulfil the requirements from “Fit For 55”, the EU climate protection package (which also comprises smaller container vessels of up to 5,000 GT), Bromeis is already planning the next steps: “For the berths of the coming extension phase, we are facing the challenge to have container vessels with high processing frequency, short lay-times and lower energy consumption.”

HAMBURG WANTS MORE – CLIMATE-NEUTRAL BY 2045

In parallel, HPA is also dealing with electrifying inland waterway shipping, inner-port traffic, and other ship segments such as tankers, RoRo or multi-purpose ships, even when there are no specified EU targets for these yet. However, the integral approach is impor-



Ready to roll: Depending on the position of the connection on the vessel, different lengths of cable are required

© Hamburg Port Authority, Andreas Schmidt-Wiehoff

tant for HPA in order to reach the city's climate targets. Because Hamburg wants to be climate-neutral by 2045. Within this sustainable scenario the decarbonisation of the city port is an important component.

ENTIRELY GREEN POWER

The energy, which HPA buys from the local power supplier "Hamburger Energiewerke" is 100 percent green, Bromeis assures with commitment. The consumption depends to a large extent on lay-time, the type of ship and cargo. He makes clear: A cruise ship needs significantly more power than a container vessel, but its lay-time is shorter. He estimates the average power consumption of a cruise ship at berth to be between 50,000 and 60,000 kWh, while a container vessel requires 140,000 to 150,000 kWh. If in 2030 all ship categories of container vessel and cruise ships with more than 5000 GT are connected to the port supply, this will result in a massive demand for power. "Our estimation for the total power demand for 2030 will be 130-140 Gwh."

Perspectively, according to Bromeis, there are sufficient power capacities available. As an industrial port, Hamburg has a very strong power grid, which will be expanded further anyway due to integral electrification. The stations are already laid out for additionally charging accumulators if required. This is of interest in the near future for climate-neutral processing along the estuary, as well as for smaller ships in the shortsea segment.

COMBINED PRICE OF FIXED AND VARIABLE COMPONENTS

According to HPA, the price for shore power will be a combination of two components: The variable electricity rate and the fixed service fee. Unlike in the private market, according to the port authority, it is not possible to offer fixed electricity prices in the market as the demand is very volatile. Bromeis states: "For a fixed price, the shipping companies would have to agree to fixed amounts at fixed times. However, in practice this is hard to do, as the port calls – particularly those of container vessels – often deviate from schedule." HPA therefore has no other option than to buy electricity from the stock market, with prices varying by more than 50 percent during one day.

MANY SHIPPING COMPANIES ARE EXPERIENCED WITH SHORE POWER

Many container shipping companies calling Hamburg have already gained initial experience with shore power in ports outside of Europe. In Los Angeles, for example, shore power has been mandatory since 2014 already and in some Asian ports switching to shore power is also mandatory already today. So, the shipping companies experienced with shore power are accordingly interested in the test phase in Hamburg. – Hapag-Lloyd, Maersk, MSC, CMA CGM, Cosco, OOCL, and ONE are among them.

Hapag-Lloyd is a shipping company open to the proactive use of this environmentally-friendly alternative.

Indeed, the company presently has a major part of its fleet suitable for shore power in use in other ports, in which shore power is already mandatory. However, according to Hapag-Lloyd, there are 81 port calls for Hamburg this year already with ships that would be able to connect to shore power immediately. Nikolas Fischer, Hapag-Lloyd spokesman, on further preparation: "Our entire Dortmund class was equipped with shore-power fittings already by the end of last year and beginning of this year. All newbuildings are also equipped with shore-power connections."

WAITING FOR GREEN LIGHT

The shipping company Ocean Network Express (ONE) also supports the environmentally friendly perspective. Jan Holst, ONE Director Germany & Central Europe, indicates: "All of our 24,000-TEU newbuildings calling Hamburg are suitable for shore power and have the respective equipment on board." Holst indicates that ONE may start anytime, depending on the availability of the shore-power equipment. "As soon as berths 3+4 at Burchardkai, used by us, are connected to the system and HPA gives the green light, we will get our plug out."

Jan Holst

ONE Director Germany & Central Europe



"As soon as HPA gives the green light, we will get out our plug."

The Danish shipping company Maersk wants to be right at the forefront. It already had one successful premiere: The ship integration test on Maersk Condor at the end of August was the first time in Europe that a container vessel was connected to shore power. "Our interest is huge, as supplying our ships with green shore power is a crucial milestone on our way to reach net zero greenhouse gas emissions by 2040," a speaker at Maersk makes clear. A refitting programme has started to equip the ships with shore-based power hardware step by step. Regarding new vessels, he says: "Our new vessels, which are able to operate on green methanol, are likely to plug in to shore power, as this seems to be clearly better in terms of energy utilisation than transforming green methanol back into electricity in generators onboard."

The Chinese shipping company Yang Ming presently calls the Port of Hamburg with two ships per quarter of year that are equipped for shore power connection. A schedule for refitting the container fleet is still being worked on, explains Sally Lee, Senior Manager of Yang Ming Europe Operation.

HURDLES FOR FEEDERSHIPS

For feederships there have not been any feasible concepts from the port authority or terminals until now, as Andreas Blankenburg, Head of Operations Department Unifeeder Germany, reports. He sees the ships' short period of stay as a hurdle for feeder shipping. He makes clear: "In three of four terminal calls at Port of Hamburg we stay at one terminal for one to two hours only. Plugging a ship in and out for this short period is a huge effort." Apart from that, the possible height at which the shore power device can be installed in feeder ships must be taken into account. Due to their size and depending on the tidal lift, there might be a risk that the technical equipment is below the quay wall in case of low water level. ■

Conditions: Defining standards and marching in step

Chief Executive Officer of German Shipowners' Association, Martin Kroeger, directs attention to another important framework condition, which applies for all: "The greatest challenge for maritime traffic when using shore power is that the power connectors have not been completely standardised internationally. Because only when shore power is reliably available at a port and technically usable for a ship, the shipping companies can make the very costly investment for connecting equipment on board, which is compatible to shore power."

Dr Alexander Geisler of Hamburg Shipbrokers' Association, names another condition that must be fulfilled: "The connectors and, most of all, the amount of electricity must be available at the ports. Therefore we welcome the efforts that are presently made to create the respective infrastructure. In order to avoid competitive distortions between the ports, according to Hamburg Shipbrokers' Association it is necessary that the legal obligations to accept shore power become effective simultaneously in the ports of Antwerp, Bremerhaven, Rotterdam and Hamburg.

All in all, Geisler considers the industry to be on the right track. "More than half of the emissions saved in commercial shipping in the last few years, are due to the use of modern, great designs. By creating options to accept shore power at the ports, they may continue on this path.

LNG to supply Germany



'Hoegh Gannet' (left) and an LNG tanker (right) to be seen in foreground; also docked at the pier of the all-purpose port on the Elbe are several bulk cargo vessels

With their LNG terminals, Brunsbüttel and Stade are playing a major role in supplying Germany with energy. Both these Elbe ports are planning to construct and operate shore-based LNG terminals.

BY NICOLE DE JONG

LNG terminals are now playing an essential part in natural gas supply for trade, industry and households. With Brunsbüttel and Stade, two Elbe ports have been selected together as sites for LNG terminals. Brunsbüttel has addressed the subject of LNG – Liquefied Natural Gas – ever since 2011. “At the time it was primarily to serve as a fuel for ships,” says Frank Schnabel, CEO of Brunsbüttel Ports.

Commissioned by the German federal government, at the beginning of 2023 the “Hoegh Gannet”, a floating LNG terminal with an FSRU – Floating Storage and Regasification Unit – was stationed in Brunsbüttel’s Elbe port. This is used to import and re-gasify natural gas and to feed it into the German gas network. FSRUs are seen as a rapid solution permitting import of large quantities of LNG for Germany.

Around 300 metres long, the ‘Hoegh Gannet’ is capable of accepting up to 170,000 cubic metres of LNG from tankers during a single discharge operation. Her regasification capacity amounts to 750 million cubic feet per day, corresponding to a network input of 3.5 to 5 billion cubic metres of natural gas per year. The ‘Hoegh Gannet’ is now lying permanently at Brunsbüttel and storing the LNG at minus161°C in tanks especially suitable for these very low temperatures. Commercially, the terminal is operated by DET – German Energy Terminal, commissioned in its turn by the Federal Ministry of Economics and Climate Protection.

Why Brunsbüttel, then? Brunsbüttel’s ChemCoast Park covers an area of 2,000 hectares. With nearly 4,500 jobs right on the spot, this is Schleswig-Holstein’s largest industrial park. Companies from the chemical and oil industries, energy producers, logistic companies and other sectors of industry produce and trade there. They all profit from the strategic location on the Elbe and the Kiel Canal, and proximity to the Hamburg Metropolitan Region. Its access to renewa-

ble energies will enable this site to offer tremendous potential, especially in view of the energy transition.

“Our motivation has been – and will also remain – an awareness that with our efforts of the past year we have been able to play a crucial part in Germany continuing to receive a reliable supply of gas,” states Schnabel. That this should also benefit the entire industrial zone, itself a heavy user of gas, has a very positive effect for the companies based in Brunsbüttel. However, our efforts are by no means completed yet. “After surviving winter 2022/23 well, with the aid of the stored LNG, all those in the project, from cen-



the ‘Hoegh Gannet’ is capable of accepting up to 170,000 cubic metres of LNG.

tral government, the state of Schleswig-Holstein, local authorities and agents are working at high pressure to succeed in coming well through the forthcoming winter,” he stressed.

LNG is a valuable bridging technology on the path towards the energy transition that will contribute towards diversification of German energy supply sources and in the long term will smooth the way for import of green energy sources. “Especially after the loss of Russian gas supplies, the creation of a multifarious energy import infrastructure in Germany is indispensable, if industry and private households are to continue to be supplied with gas independently of pipelines,” says Schnabel. In the long term, such



Visualisation of planned import terminal in Port of Brunsbüttel

infrastructure will need to be aligned to the import of green energy sources such as green hydrogen, and/or ammonia as a substance derived from hydrogen.

This is how the future looks for Brunsbüttel as an energy port. The German LNG terminal located in Brunsbüttel is implementing the plan to build and operate a shore-based LNG terminal. Planning envisages the prospect of LNG imports being followed by the landing of green hydrogen and/or derivatives in Brunsbüttel. The energy port will in future itself produce green hydrogen to be able to supply this to meanwhile de-carbonized industry in the long term.

In contributing to the energy supply, economic development and climate protection, Brunsbüttel can be seen as an important module in North Germany's energy infrastructure, and hence Hamburg's, too. "As ports, Brunsbüttel and Hamburg have been linked for many years in a close and trusting partnership aimed at positioning and forming the economic region on the Lower Elbe as fit for the future," emphasizes Schnabel. With their individual strengths and potentials, the two locations can complement and mutually support each other in overcoming all manner of challenges.

A new FSRU is planned for Stade at the end of 2023. The Dynagas shipping company's 'Transgas Force' is one of the five floating LNG terminals chartered by the government and operated by state-owned DET – Ger-

man Energy Terminal. This FSRU is 294 metres long and has a capacity for 174,000 cubic metres of LNG, corresponding to annual network input of six billion cubic metres of natural gas per year. With annual consumption estimated at around 20,000 cubic metres per household, this suffices to supply 300,000 households. The FSRU can already utilize the planned land-based terminal, while the interface to the German gas network is very short.

Stade is currently also witnessing creation of HEH – the Hanseatic Energy Hub, an independent liquefied gas import terminal, flexible for the future. The shareholders in this privately financed project are Buss Group from Hamburg, Enagás from Spain, Schweizer Partners Group and the chemicals company Dow. HEH is being created in the existing Stade industrial zone as a zero-emissions terminal. For regasification, or the return of liquefied gas to its condition as gas, this can resort to waste heat from Dow. Almost 50 years of experience with liquid gases on site guarantee supreme standards of safety, according to HEH.

With HEH, an import terminal is being created in Stade that will ensure supplies for Germany of LNG and green gases and at the same time prepare the way on the market for hydrogen," explains Dr Johann Killinger, a partner and CEO of HEH. Ready to handle ammonia, this land-based facility will enter service in

2027. “The basis for this is a flexible modular system fit for the future and the transition to green energy. This optimally utilizes and assembles the multifarious opportunities of this energy region in the chemical, logistics and energy sectors,” he adds.

HEH sees the Stade industry park as being ideally located, on the Elbe with access to both the North Sea and the Port of Hamburg, not far from two autobahns and Europe’s largest marshalling yard at Maschen. Distribution of liquefied gases is possible by ship, truck, and in future by rail. Pipelines also ensure access to the German gas network. The port itself is also accessible for the largest LNG tankers with a length of 345 metres. Smaller tankers can accept LNG and ammonia here before either delivering these to other inland waterway ports or providing immediate bunkers for vessels lying, in Hamburg, on the Elbe or in the Kiel Canal.

And why LNG? It is suitable for transport, facilitating diversification of natural gas supply countries. Experts regard LNG as an important alternative to pipeline gas. It also constitutes a low-emission fuel for shipping and for heavy freight traffic, emitting hardly any fine dust, no sulphur dioxide and up to 85 percent less nitrogen oxide. In the long term, it will also be possible to produce LNG climate-neutrally as synthet-

What is LNG?

LNG is a non-toxic, colourless and odour-free liquid. The abbreviation LNG stands for Liquefied Natural Gas. Liquefied at minus 162 degrees Celsius and under atmospheric pressure, it then occupies only 1/600 of its volume in gas form. This makes it simple to transport and store. This is achieved without loss or additional cooling, thanks to the state-of-the-art insulation materials used for ship and storage tanks. The same applies to bio-LNG and SNG, a synthetically produced LNG. Source: HEH



Infos at:
hanseatic-energy-hub.de/energietraeger/

ic LNG, based on renewable energy and with the aid of the power-to-X process that transforms surplus electrical energy into other usable forms such as hydrogen or synthetic fuels.

Admittedly, some worries exist that methane emissions could arise from the transport and liquification of the gas, increasing the environmental load. Critics fear that use of LNG would cause a heavier dependence on imports, especially from countries outside Europe. They also argue that increased support for LNG could put a brake on development of renewable energies. ■



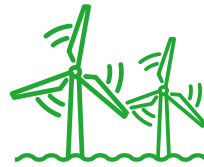


Cuxhaven focuses on energy transition

Cuxhaven plays a key role for on- and offshore wind power and is on its way to becoming a leader in terms of hydrogen as well.

BY HOLGER GRABSCH

Cuxhaven is Germany's biggest and most important wind energy port and is playing a central role for energy transition. This location is able to help shape the energy transition and became an established port for production and installation long before the energy crisis. Moreover, Cuxhaven is considered the most important import harbour for onshore wind power stations and thus has a crucial function for the ongoing energy transition in Germany.



The Port has a key function in German's energy transition.

Not least because Siemens Gamesa Renewable Energy, Titan Wind Energy and Nordmark have settled here, this location is known and recognised as the 'German Offshore Industry Centre – DOIZ'. In addition, wind industry companies Enercon, Nordex, and Vestas tranship their components in Cuxhaven. The German Offshore Industry Centre is located on a surface area of 450 ha directly at the Elbe coastline; besides the offshore and heavy-goods terminals it has a multipurpose port, storage and logistic areas for heavy goods, RoRo ramps, three mobile harbour cranes (LHM 600, LHM 550, and LHM 400) as well as one 500-t portal crane. 4,500 wind power components are handled here every year. The port is considered the gate to the North Sea as a Green Power Plant.

As the government has laid the foundations with its Wind Energy at Sea Act to push forward the expansion of offshore wind energy, Cuxhaven will be focused on even more

Handling of tower sections
at the Blue Water BREB
terminal in the German
Offshore Industry Centre
Cuxhaven

© Kevin Lammings/ELB/REKLAME

Cuxhaven is the No. 1 in Germany for the handling of wind energy components



as a leading offshore base port at the North Sea coast. As from Cuxhaven, it is possible to build and supply wind parks offshore.

“In Cuxhaven we see a lot of potential in the port with the expansion of berth spaces 5 to 7 and the port expansion with further sites in the hinterland

near the port,” says Marc Itgen, Head of the Agency for Economic Development of the City of Cuxhaven. After closing this gap, nearly four kilometres of quay length will then be available for the large and heavy parts of wind power stations. The Eastern expansion area has been developed already, a new heavy-duty bridge over the railroad tracks is being planned and



© BLUE WATER BREB

will be available in the short to medium term, altogether with the Southern expansion areas.

The state government of Lower Saxony has anchored in its coalition contract the intention to promote the expansion project for berth spaces 5 to 7 and has settled to take over one third of the approximately 300

million Euros this project will cost. One third will be contributed by the port industries, and the acting parties hope that the Federal Government will add the remaining third. "We are talking about 100 million Euros, which is a lot of money, but well invested with regard to the energy transition." They hope for the Federal Government to take over more responsibility and to act faster. "We have to think a bit bigger here," Itgen emphasises. Because the renewable energy sector is without a doubt one of the key industries in this economic region – above all the wind energy field.

"Within the past 15 years, Cuxhaven has already invested a lot in expanding the port and now hopes for political support from state and government. For in the next few years, approximately 500 million Euros will have to be invested in Cuxhaven infrastructure," says the Lord Mayor of Cuxhaven Uwe Santjer. With the additional berth spaces the base port for offshore and onshore wind energy projects will become even more productive and attractive. Until 2030 the installed offshore wind energy capacity will rise from presently 8.3 to at least 30 gigawatts, to 40 by 2035 and even to 70 gigawatts by 2045. "Without the space, we will neither be able to reach our own expansion targets nor cope with the energy transition," Itgen adds. Foundations of wind power stations made of steel and concrete now weigh 2,500 t, are approximately 140 metres long and have a diameter of more than ten metres. For this reason, suitable storage areas are required to pre-stow parts such as rotor blades, tower segments or power houses, and also sufficient manoeuvring and storage areas to be able to move and store the parts within the port area.

The Building Law for the expansion of berth spaces 5 to 7 has been effective since 2020, and planning consent has also been given. Therefore, the project might get started. The investment will push the region forward effectively. "We want to have industry, where there is energy," says Itgen. In terms of employees, Cuxhaven already has an added value of 30 to 40 million Euros only due to offshore industry, in the city as well as the region with its catchment area of approximately one hour travelling time from the hinterland. Speaking of hinterland: The port is directly connected to motorway A27 via a roundabout.

In order to be able to further improve the port supply and to make the transport chain more sustainable, the railway line Cuxhaven-Stade-Hamburg shall be expanded with a second track, electrified, and made ready to allow faster speed. ■

Write to me at: facebook.com/hafenhamburg

PETER PICKHUBEN'S PINBOARD



Shore-power unit at CTT: first ship test successful

During a test at HHLA – Hamburger Hafen und Logistik's CTT Terminal, Cosco Shipping's 'Taurus' was supplied with shore power for the first time at the beginning of October. HPA – Hamburg Port Authority will now be conducting additional test runs so that shore-power units for container ships in the Port of Hamburg can be brought into service as rapidly as possible. Like all Cosco Shipping's newer ships – from 2018 – the 'Taurus' is one of those already equipped with the integrated technical equipment required for shore-power supply. The plant and the process have now been successfully tested by project partners HPA, Siemens, COSCO and HHLA.



© Hamburg Port Authority / Andrea Schmitt-Wiethoff

By the way

... you can also find my favourite port on social media. Take a look:

-  HAFENHAMBURG
-  PORTOFHAMBURG
-  PORTOFHAMBURG
-  PORT OF HAMBURG

New members at HHM

With Eazy Customs and TSIT, Port of Hamburg can welcome two new members at once. Eazy Customs lives up to its name by simplifying Customs formalities. On its software platform, Eazy Customs offers several individual solutions for Customs clearance. A ticket system guarantees efficient and effective opportunities for handling.

As soon as freight needs to be imported or exported, TSIT performs all services for its customers.

This international company offers a broad range of services in the bonded warehousing, storage, Customs clearance, warehousing and transport logistics for both freight flows of European origin and those from other countries involving transit through Europe.



Tugs will run on hydrogen

Fairplay Towage plans to integrate tugs that can be run on hydrogen into its fleet during the next few years. Facilitating deployment of hydrogen-powered tugs will require preparation of suitable bunkering infrastructure in addition to hydrogen itself. Mabanft Group, as a supplier of marine fuels and operator of tank farms in the Port of Hamburg, intends to extend its marine fuel range with hydrogen and to use Hamburg tank farms for this, so that Fairplay Towage can be supplied. The two companies have signed a memorandum of understanding on supplying tugs in the Port of Hamburg with hydrogen.



Port of Kiel opens two shore-power units in Ostuferhafen

Port of Kiel has opened two shore-power units at its Ostuferhafen. These consist of one 50/60-Hz shore-power unit for cruise ships and ferries, plus one 50-Hz unit for ferries. These are funded equally with almost 5.5 million euros each by German central government and the state of Schleswig-Holstein. The decision on this was conveyed by Schleswig-Holstein's Prime Minister, Daniel Günther, to Dr Dirk Claus, CEO of the Port of Kiel and Kiel's Lord Mayor, Dr Ulf Kämpfer. A start has already been made on commissioning the unit for cruise ships. In preparation for regular supply, integration tests are being conducted in parallel with the cruise ship 'MSC Euribia'. In the next few years, Kiel will become the home port for the MSC Cruises' flagship. This energy-efficient cruise ship will be the first vessel to accept shore power at Ostuferhafen. By 2023, at latest, the Port of Kiel will be supplying all ships berthed there with green shore power. For the coming season, the port plans to supply no less than 40 cruise ships via the recently opened unit at Ostuferhafen, with an additional 60 calls being made at Ostseekai.



Three new projects for 'green' ports

Port of Hamburg Marketing is simultaneously involved in three European projects aimed at boosting decarbonization of ports.

The goal is for freight transport to run climate-neutrally before long. The ports and the companies based there are under an obligation to develop new solutions. HHM – Port of Hamburg Marketing's development department is simultaneously backing three promotion projects funded by the European Union's Interreg North Sea program.

The focus of the **GSC – Green Supply Chains project** is on realizing synergies in the electrification strategies for (inland) ports and adjacent regions. Within the project, HHM's member HPA – Hamburg Port Authority, is for instance looking into a further roll-out of shore-power solutions in the port for additional customers. In parallel with these, the scope of the project will also cover hinterland services until 2026. The tech start-up modality also aims to contribute towards further decarbonization here. As part of the project, this HHM member plans to expand existing booking tools for intermodal services, simplifying booking and utilization of these.

The **SPIES – Shore Power In European Shipping** – project complements GSC. To the fore here is development of an action plan for coordinated expansion of shore power supply for inland waterway craft and coasters. Both HPA and the Federation of Public Inland Ports will advise the project's consortium until it expires in 2025. On this, the project is headed by POM – Provinciale Ontwikkelingsmaatschappij – the provincial development company of Limburg/Netherlands.

The third project is more intensively concerned with staff's soft skills. **GRIT – 'Skills for a Green Industrial Transition'** is a basic and vocational training programme for qualified technicians in support of the green industrial transition in the port sector. As the vocational training centre in the Port of Hamburg, HHM member company 'ma-co – maritime-competence centre' will join it in identifying future qualification requirements in the Port of Hamburg and developing the appropriate courses to precisely match these. This project is being headed by the Province of Antwerp until 2025. ■



In the project ma-co is creating new in-service training courses for greater sustainability

Imprint

Published by: Hafen Hamburg Marketing e.V. ■ **Editorial supervision issue December 2023:** Ralf Johanning, Hafen Hamburg Marketing e.V.

■ **Production issue December 2023:** ELBREKLAME Marketing und Kommunikation EMK GmbH, Holländische Reihe 8, 22765 Hamburg, www.elbreklame.de ■ **Layout issue December 2023:** Mahler, ELBREKLAME GmbH

■ **Printers issue December 2023:** Beisner Druck GmbH & Co. KG ■ **Advertising issue December 2023:** Holger Grabsch, ELBREKLAME GmbH

■ **English adaption issue December 2023:** T + S Team

Signed articles do not necessarily reflect the editors' views. No responsibility is accepted for unsolicited photographs or manuscripts received. An online version of the MAGAZINE is available in our mediathek at www.hafen-hamburg.de/mediathek.

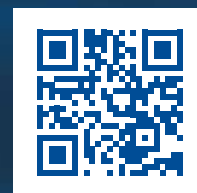
Please send details of any changes of address or requests for additional copies to us at:

Port of Hamburg Marketing, Tel: +49 40 37709 0, E-Mail: info@hafen-hamburg.de

Logistik-Experten für alle Güter

Gefahrgut-, Transport-, Werk- und Warenlogistik — *Alles aus einer Hand*

- Gefahrguttankcontainer-Operating
- Kundenspezifische Logistiklösungen
- Vollautomatische Hochregallager mit über 40.000 Palettenstellplätzen
- Konventionelles Fachbodenregallager mit mehr als 20.000 Stellplätzen



KONTAKT:

info@kruse-unternehmensgruppe.de

Friedrich A. Kruse Jun. Unternehmensgruppe
Fährstraße 49 · 25541 Brunsbüttel
Tel. 04852/881-0 · Fax 04852/881-199
www.spedition-kruse.de





BLUE WATER BREB



**Und was ist mit der
Energiewende?**

Läuft!

auch unter...



Blue Water BREB GmbH
Kapitän-Alexander-Straße 16
27472 Cuxhaven

www.bluewaterbreb.de
info@bw-breb.de

Terminal Cuxhaven
(DOIZ)
An der Baumrönne 1
27472 Cuxhaven

Agency Sassnitz
Hafeneingangsgebäude
Im Fährhafen 20b
18546 Sassnitz/Neu Mukram

