PORT OF KIEL


BLUE PORT
KIEL.
We aim to become one of the
most sustainable ports in Europe.
www.portofkiel.com

PORT OF KIEL.
BLUE ID.

For us BLUE PORT KIEL stands for the compatibility of sustainability and performance.

BLUE – SEA, SKY, PLANET.
BLUE TO DESCRIBE AN ECOLOGICAL FUTURE.

Kiel Fjord.

PORT OF KIEL. We rise to the challenge of utilizing and developing the economic use of the port in a sustainable manner in line with public interest. This includes, in particular, climate protection, energy and resource efficiency and the avoidance of harmful substances in the air and in the waters as far as technologically possible. In addition to supporting exteral projects and incentive measures, we do our homework: the acceptance of ship waste-water, building on-shore power plants, operating and testing electronic lift trucks and tractors, photovoltaics, e-mobility and energy-efficient lighting systems. All terminal facilities and buildings have been purchasing certified green power since 2012. We offer our partners tariff incentives for eco-friendly technology in shipbuilding, an intelligent transport management system on our terminal and we participate in pilot schemes for alternative low-emission fuels.

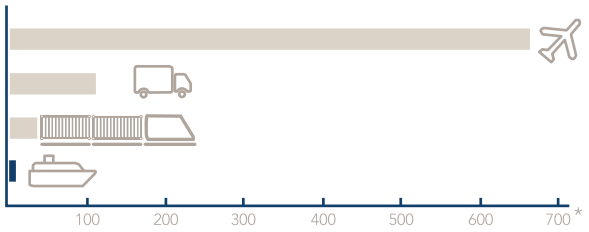
BALTIC SEA. ACTIVITIES.

The Baltic Sea. Strictest limits.

The Baltic Sea. Kiel is a port on the Baltic Sea, which due to its character is a very sensitive navigated and protected area. The regulations regarding vessel emissions, waste and waste-water disposal, oil tanker equipment, the usage of marine coatings and the discharge of ballast water are much more stringent here than in most other navigated areas in the world. The Baltic Sea is one of the cleanest navigated areas whatsoever – together with the coasts of the USA – not least because of its designation as an Emission Control Area (ECA). Shipping companies are investing in new technologies to make their vessels even more efficient and to reduce emissions on a sustained basis. We believe that the worldwide implementation of the 0.1 per cent threshold value for sulphur in vessel emissions as of 2020 is the right way towards a cleaner environment.

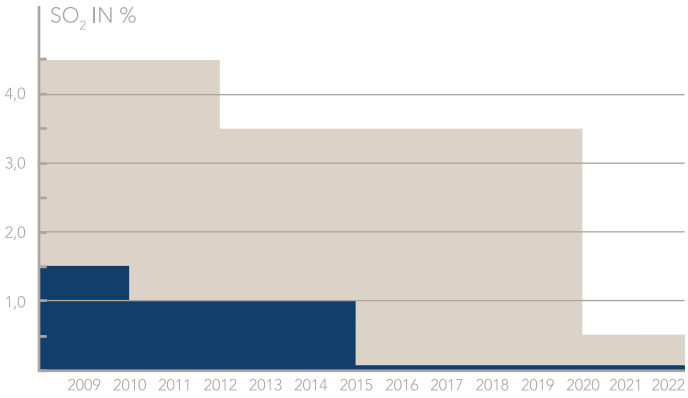
Shipping. Over 90 per cent of world trade, nearly 95 per cent of the European Union's foreign trade and almost 70 per cent of the German import and export business are realised by seatrade. Maritime transport is not only the most powerful mode of transport in the international exchange of goods, but also the most efficient one with respect to transport related energy consumption and subsequent pollution.

CO_2 EMISSIONS/TRANSPORT MODE



* Comparison of CO_2 emissions per tonne-kilometre 2012. Source: www.forschungsinformationssystem.de

SULPHUR LIMITS



Threshold value Northern Sea/ Baltic Sea. See also map ECA-area.

Threshold value outside

From Road to Sea. In fact, intermodal transport leads to the significant reduction of emissions due to shifting cargo transhipment from road to rail and sea. Compared to road transport, the rail freight traffic produces a lot less emissions in terms of fine particulate matter, nitrogen oxides and greenhouse gases. We support rail traffic through developing all our cargo terminals and connecting them to the track system.

Ship technologies. The ferries and cruise ships calling at the port of Kiel are equipped with state-of-the-art scrubbers and filter systems and emit significantly fewer pollutants. In order to further reduce emissions the shipping companies count more and more on alternative fuels for their new vessels. The ferries of the Stena Line shipping company which operate from Kiel are a very good example as they are powered by methanol. However, also other shipping companies are currently working on projects for the establishment of alternative fuels.

AIR QUALITY MEASURING VALUES.

Everything within blue bounds.

Air quality. How good is the quality of the port's air we breathe in here really? Using accredited measurement techniques we got to the bottom of this question. Throughout 2018 we have conducted long-term air quality measurements of nitrogen oxide and fine particulate matter at five different monitoring stations spread across the port of Kiel. The measuring results were also compared to existing measurements performed in 2008.

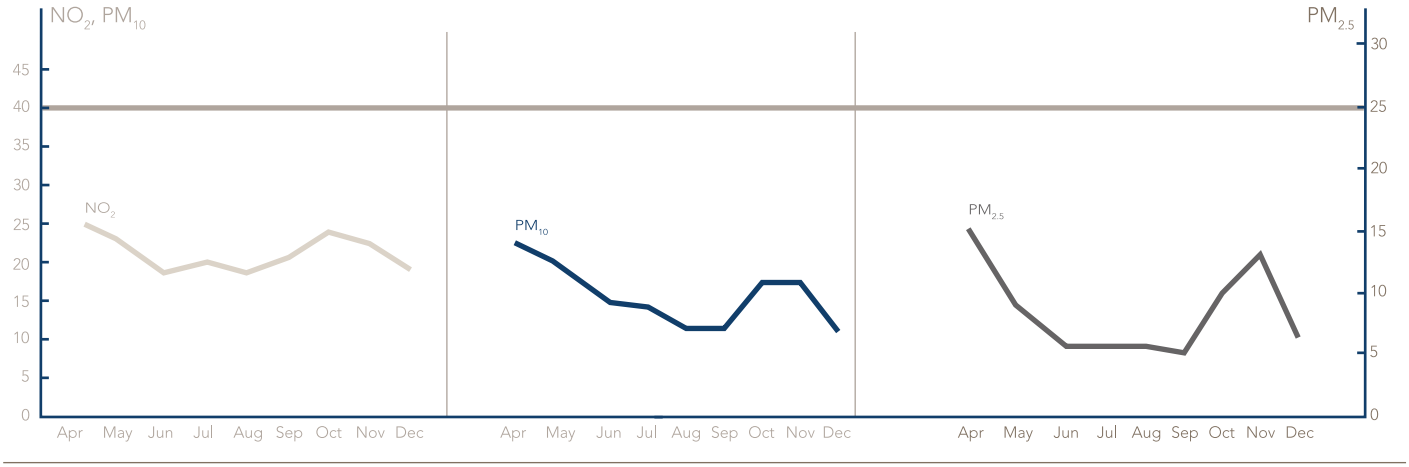
Measuring techniques. Using a certified measurement process, measurement stations for airborne particulates ($PM_{2.5}$, PM_{10}) and passive samplers of the Eurofins company were used complemented by Olfasense sensor systems to analyse the air quality. Optical particulate counters captured the parametres PM_{1}, $PM_{2.5}$ und PM_{10}. The measurement procedure was coordinated with and mutually agreed with the responsible State Agency for Agriculture, Environmental and Rural Areas Schleswig-Holstein (LLUR) and the Environmental Protection Authority of the State Capital City of Kiel.

Results. All results significantly fall below the applicable regulatory thresholds. Even with multiple cruise ships in port and easterly winds, no regulatory thresholds governing air quality are breached. Particularly during the cruise season the measured values are even lower than the annual average.

As far as fine particle matter PM_{10} is concerned, the city's background condition measured at the reference station Bremerskamp amounted to 15 µg/m³ (annual threshold value: 40µg/m³). The level of pollution captured at the measuring stations in port do not differ from this value. Regarding $PM_{2.5}$ the findings are similar. In course of the year, an average value of 8.1 µg/m³ was measured (threshold value: 25 µg/m³), which can also be included in the normal background conditions category of the city. Also the nitrogen oxide pollution at the port's measuring stations definitely falls below the limit value (40 µg/m³). At the castle garden near Ostseekai, an average NO_2 level of 21.3 µg/m³ was measured, which lies in the upper range of the city's background condition values. In the Ostuferhafen area, levels of 15.8 µg/m³ were measured which correspond to the dimensions captured at the reference measuring point on Bremerskamp (14 µg/m³). There is no evidence to support a repeatedly advanced theory that there is a connection with emissions registered on one of Kiel's main traffic axes, the Theodor Heuss Ring road.

Please find more information and the complete results on our homepage:

MEASURED VALUES (NO_2, PM_{10}, $PM_{2.5}$) WITH MULTIPLE SHIPS IN PORT



* Hegewischstraße

ON-SHORE POWER TERMINALS.

Norwegenkai, Ostseekai und Schwedenkai.

The air quality in the port of Kiel is very good. However, we as PORT OF KIEL strive to proactively develop solutions and do our part for keeping the air clean in our city. This is what we promised to do in our BLUE PORT Concept, this is the way we plan and act - and not just since yesterday.

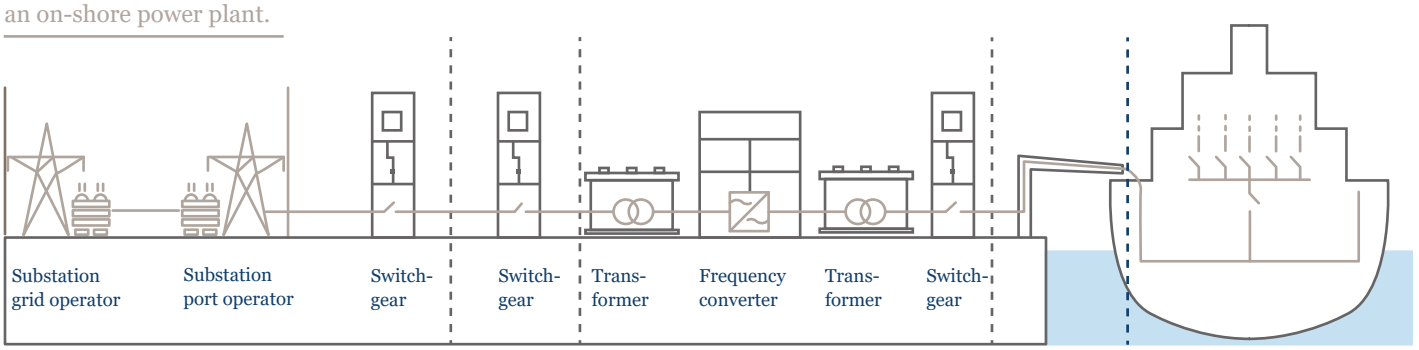
On-shore power terminals. On-shore power is a sensible way for the ferries and cruise ships berthing in Kiel‘s city port to avoid the emission of air pollu-tants and noise during their docking times. Since spring 2019, there is an on-shore power connection available to the Norway ferries of Color Line so that the marine diesel generators can be switched off during the vessels‘ time in port. So their stay in Kiel has become totally pollution-free. Further plants will be estab- lished at the Schwedenkai and Ostseekai Terminals by 2020.

Plug it in and switch it on. Sounds pretty straightforward but it is no quite as easy as that. In order to provide the ships with on-shore power, a number of constructional and technological developments had to be made. The facility at the Ostseekai, in particular, is an innovative pilot project.

On-shore connection Color Line.

In future, 60% of the cumulated electricity demands during berthing times of all ships calling the PORT OF KIEL will be covered with the supply of green shore power.

Schematic illustration of an on-shore power plant.



Unique technology. An innovative and worldwide unique technology has been devloped specifically for meeting the different requirements of the vessels of international shipping companies which are all equipped with the most different standards. The electricity demand of the big ships during their time in port had to be calculated with 3-12 MW which equals the power consumption of small towns. Furthermore, there are the voltages and frequencies (50/60 Hz) that vary between the on-board and the on-shore grid as well as the available power output of the grid operator for different power require-ments, particularly with regards to peak loads and short circuit current requirements. The power cannot be supplied to the ship using a simple cable connection - it has to be customised in a special substation before.

WASTE-WATER MANAGEMENT.

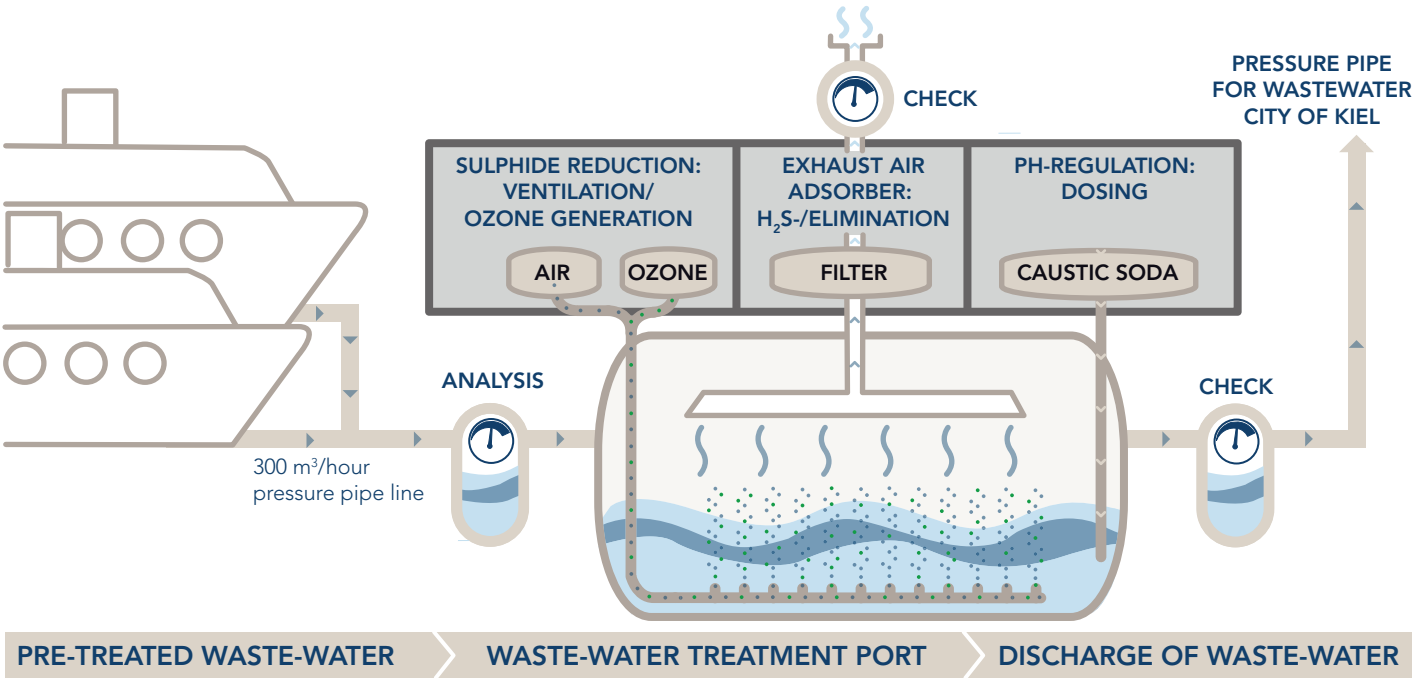
For a clean Baltic Sea.

As of the year 2021 all cruise ships – new ships from as early as 2019 indeed – must dispose of all their waste-water in port or respectively can only do so on board of the ship when regulatory standards are adhered to in order keep our oceans clean. At the Ostseekai, disposing waste-water has already been possible since 2007 and even longer at the ferry terminals. In this context, the quantities requested to be discharged amount to up to 200 cubic metres/hour per ship. In comparison: A pool with a length of 25 metres holds approx. 900 cubic metres of water.

Together with the innovative Unitechnics company, the PORT OF KIEL carried out extensive tests, identified the best process for treating the sewage of cruise ships and created new standards. Next to the volume of waste-water and the adaption of the pH-value to the local sewage system the odourless drainage was an important requirement – on the terminal as well as on the way to the sewage plant. This innovation is part of our BLUE PORT Concept and one of our contributions to marine protection. By operating the most modern reception facility for ship sewage at the German coast we meet the regulatory requirements which are due to take effect as of 2021 already since 2017.

How it works. Several hundred metres of pressure resistant pipes with eight junction points, have been laid parallel to the ship berths. The pipes flow into storage containers, located north of the terminal, which are fitted with waste-water analytical and treatment technology. By using compressed air and adding ozone the water is aerated in big pipes. The generated exhaust air which has been cleaned and filtered from hydrosulphide is eventually so pure and odourless that it can be discharged through a chimney. The treated ship waste-water is finally pumped into compressed air pipes newly laid below the adjacent street and leading to the municipal delivery point. From there it is fed to the city sewage plant in Bülk and cleaned.

Now, 300 cubic metre of waste-water can be disposed of per hour at the Ostseekai. The first ships to take advantage of the new waste-water reception facility were “Mein Schiff 3” and “Mein Schiff 6” of TUI Cruises. In 2018 about 17,624 cubic metres of ship waste-water were discharged here.



BLUE PORT KIEL.
SUSTAINABILITY.

Holistic port management.

200,000 kWh of solar energy are produced by our photovoltaic systems in Ostuferhafen alone which we utilise to meet our own energy consumption needs. Any excess energy produced is fed into the municipal grid. PORT OF KIEL acting as energy provider.

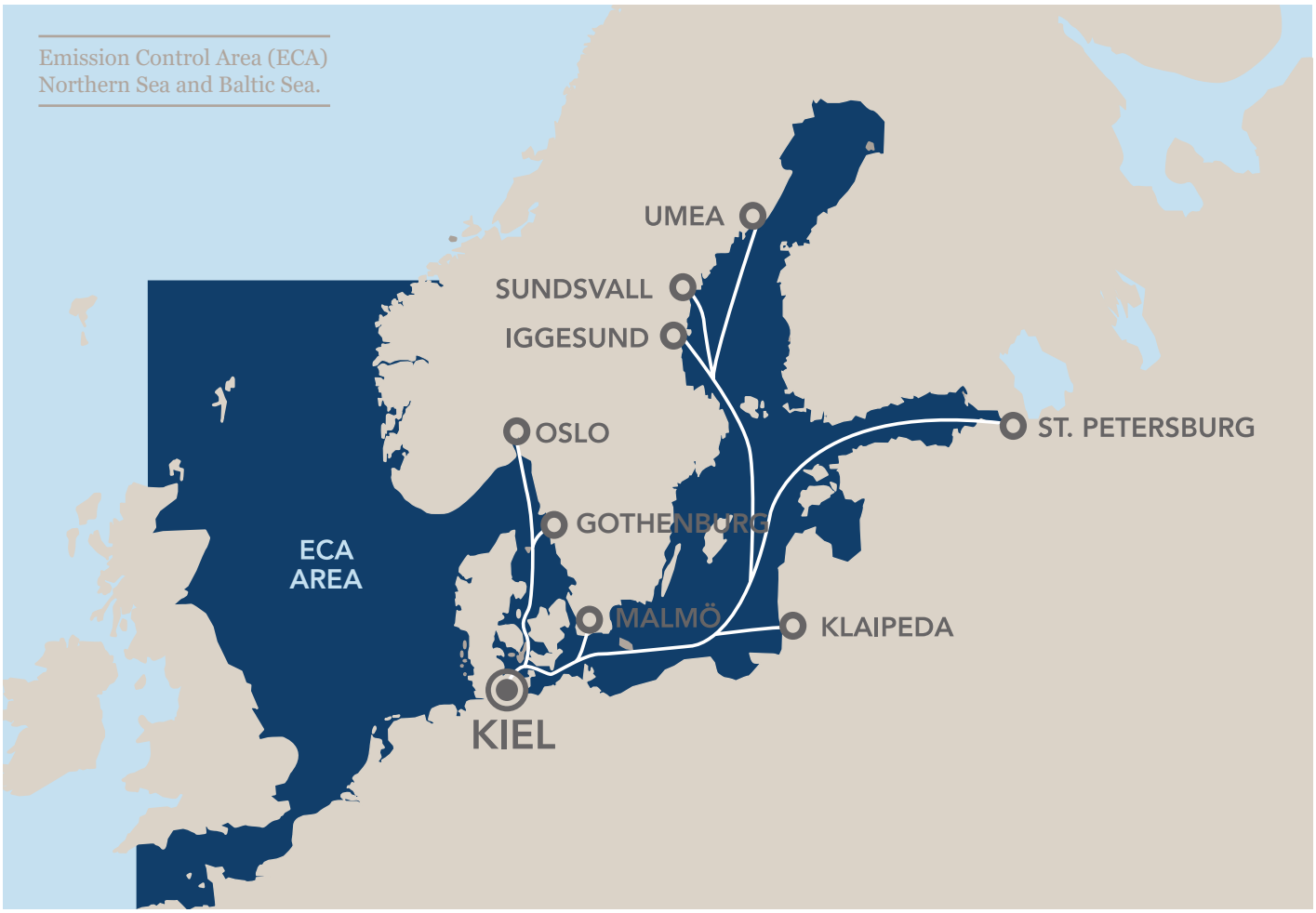
10 out of our 50 forklift trucks run on electricity. 15 % of our car fleet are e-cars to date which are used as company pool vehicles. We want to expand our electromobility further in future. To this end, also more and more handling vehicles are supposed to be substituted by electrically driven ones. So all is progressing nicely.

In 2019, the first shore power supply plant for the ferries of Color Line was connected to the grid. It allows switching off the vessels' generators during their time in port. The Schwedenkai Terminal, Stena Line, and the Ostseekai Terminal, cruise ships, will follow in 2020. (Engines off!)

In June 2017, the most modern vessel waste-water treatment plant on the German coast was taken into operation at Kiel's Ostseekai Terminal contributing significantly to the protection of the seas. (All clear!)

We are committed to sustained transport methods in the port's hinterland traffic and its logistics chain. With the expansion of the intermodal traffic, about 30,000 trailers and containers could be shifted from the road to the more eco-friendly rail transport last year alone.

We limit our business flights to the necessary minimum. For the business flights we do, we voluntarily pay climate protection contributions to the „atmosfair" organisation. These donations are used to further develop renewable energy technology. More information: www.atmosfair.de



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KIEL.
GERMANY.

Welcome to our landing page:
www.portofkiel.com

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