



Environmental Profile

Focus on Environment, Climate and Working Environment

The Port of Esbjerg focuses on environment, climate and working environment

The Port of Esbjerg is a responsible port aiming for high environmental, climate and working environment standards. Our environmental profile illustrates our efforts and results and the ways in which these efforts can create value for the Port's customers and employees.

Environment, climate and working environment management

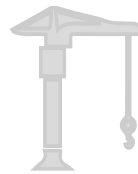
The Port of Esbjerg focuses on the management of environment, climate and working environment issues. Our efforts are enhanced by our participation in a number of external networks. We evaluate our environment management every three years using tools from EcoPort's environment network, and we prepare environment and working environment performance reports under GREENET.

A Cooperation and Health/Safety Committee oversees the Port's working environment activities. We also collaborate with the Port's stevedores in a joint Working Environment Council focusing on the conditions of the dock workers in the Port.

We pursue a holistic approach and work on several levels

Port operations

The operation and administration of the Port of Esbjerg as a responsible and environment-conscious port



The Port as a maritime industrial site

The Port of Esbjerg as the basis of industrial and shipping activities with focus on cross-disciplinary environmental initiatives



The Port as a gateway to the surrounding world

The Port of Esbjerg as infrastructure supporting environmentally sound transport solutions and corporate value chains





About the Port of Esbjerg

A port undergoing development

For nearly 150 years, the Port of Esbjerg has been a supplier of infrastructure enabling customers and users to generate business whenever possible. Adaptability, space and access are keywords of this development.

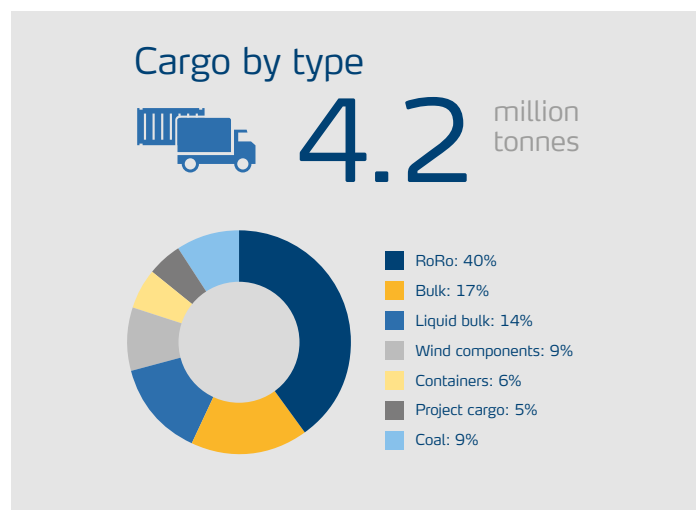
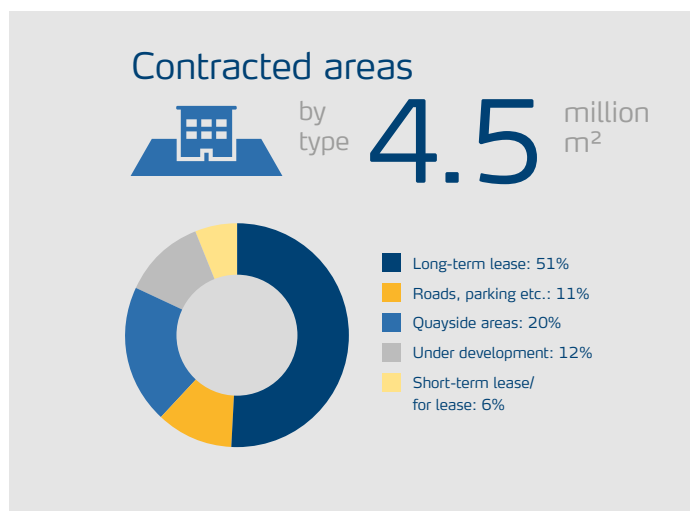
The Port of Esbjerg has undergone major transformation from fishing industry and export of agricultural produce to today's three dominant business areas: intermodal transport, wind and oil/gas.

Business areas

With more than 4.2 million tonnes of goods passing through the Port every year, the Port of Esbjerg is one of the leading ports with regard to intermodal transport in the Nordic Region.

The Port of Esbjerg is Denmark's RoRo (roll on, roll off) transport hub with regular connections to several major European ports.

In addition, the Port of Esbjerg is the primary shipping and service port for offshore wind turbines. 75% of the world's offshore wind turbines are shipped from the Port of Esbjerg. The Port is also the base port for North Sea oil and gas activities. Many companies in the Port of Esbjerg are sub-suppliers to both areas. With some 200 independent companies employing 8,000-10,000 persons, the Port of Esbjerg is in a strong position to service customers both on and off shore.





Policy and Goals

Environment, climate and working environment policy

The Port of Esbjerg is committed to addressing the environmental, climate and working environment impacts of the Port's activities and to preventing and minimising the environmental, climate and working environment impacts of the Port's operations through proactive initiatives at all levels of the organisation.

The Port of Esbjerg aims to be one of the best in the industry, and this includes setting the highest environmental, climate and working environment targets. We are convinced that this will contribute to ensuring the long-term viability of our business as well as high return on our investments.

An important part of these efforts is taking a conscious and active approach to environmental, climate and working environment issues by employing both our technical and our financial means.

Furthermore, the Port of Esbjerg is committed to complying with relevant legal and regulatory requirements and to continually improving our environmental, climate and working environment efforts.

Environmental, climate and working environment goals

- Environmental awareness is a priority and, by virtue of its location, the Port of Esbjerg intends to demonstrate that it is possible to operate a port in a very vulnerable and scenic area in a socially responsible manner.
- The Port of Esbjerg's management encourages the Port's employees to be and remain highly conscious of environmental, climate and working environment issues, for example through supplementary training.
- All levels within the organisation must take the environment, the climate and the working environment into account in the planning and implementation of all tasks.
- The Port of Esbjerg will promote waste recycling and reduce the quantity of waste for landfill and incineration.
- The Port will minimise resource consumption in order to minimise the environmental impact.





Climate impact

The Port of Esbjerg's energy and fuel consumption contributes to its carbon emission. We are actively seeking to reduce our climate impact, and we have for example entered into a climate partnership with DONG Energy.

Since 2009, certified renewable energy from the offshore wind farm Horns Rev 2 has made up a large part of our annual power consumption. Since mid-2016, the Port's entire power consumption has been covered by certified offshore wind power from Horns Rev 2. The Port of Esbjerg was port of shipment and base port in connection with the construction of the Horns Rev 2 wind farm.

Transportation and fuel

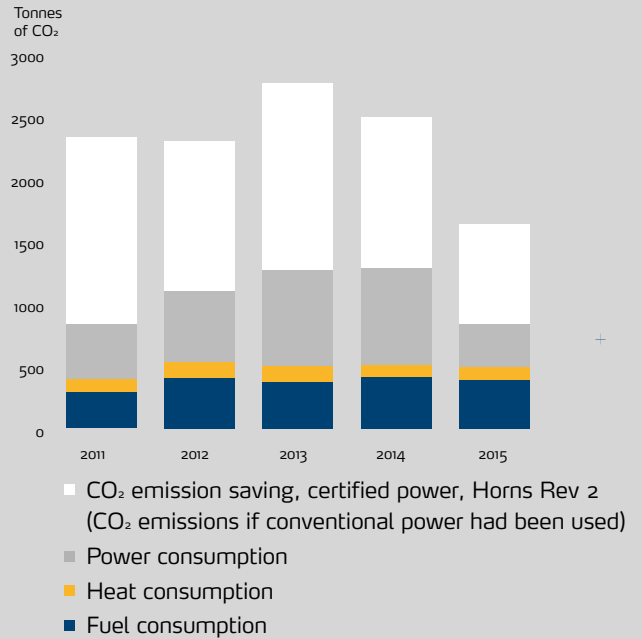
The Port of Esbjerg continually seeks to minimise the use of diesel fuel for its cranes, cars, boat, etc.

Examples of efforts to reduce fuel consumption:

- Electric cars. The Port of Esbjerg owns five electric cars that run on certified renewable energy instead of fossil fuel.
- Remote controlled distribution boards. The Port saves time and diesel fuel as the distribution boards can be operated by remote control.
- Cranes and fuel optimisation. ECO software has been installed in the port's cranes for the purpose of saving fuel.

Climate impact

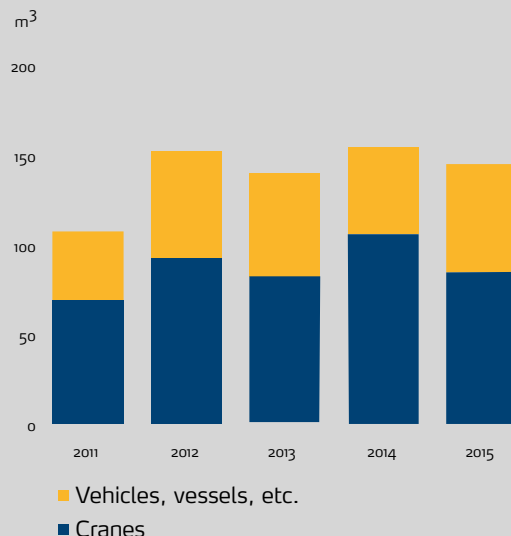
by type



Source: Computation at climatecompass.dk
Scopes 1 and 2

Fuel consumption

by type





Port Operations

Energy Consumption



Energy consumption

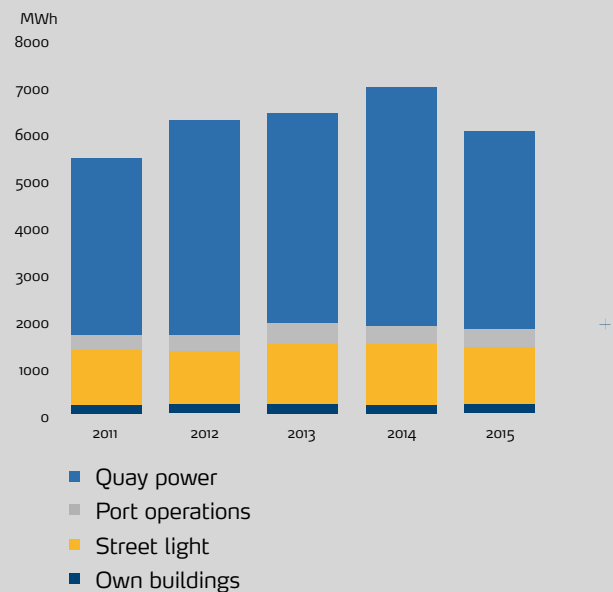
The Port of Esbjerg consumes power in its buildings and vehicles, for street light and in connection with port operations. The Port has expanded its area significantly in recent years, and the Port now covers 35 km of roads and quays. Consequently, the Port's energy consumption (street light, working light, etc.) has increased.

The Port of Esbjerg continually strives to minimise its energy consumption. For example, the Port has substituted some of the conventional street lights with LED lights and has installed voltage reducers on old street lamps thereby reducing energy consumption by 32%.

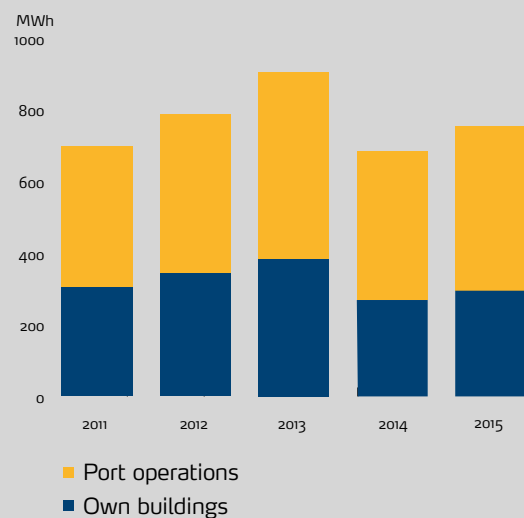
The Port of Esbjerg sells power to vessels in port and to customers on long-term leases.

The Port of Esbjerg's heat consumption is covered by district heating. The district heating is supplied by the Esbjergværket power plant in the Port and by the Esbjerg waste incineration plant.

Power consumption by type



Heat consumption by type







Resource consumption and waste

The Port of Esbjerg uses a number of other resources in its operations. In 2015, the Port used:

- 188 tonnes of road salt.
- 533 m³ of water. The Port's leaseholders additionally consumed approx. 3000 m³.
- 1600 kilos of various substances, e.g. cleaning agents.

The Port's operations result in various types of waste. Sand makes up the largest part of the waste as 202 tonnes of sand were collected and recycled in 2015.

In addition, the Port of Esbjerg ensures responsible and safe handling of ship waste. In 2015, galley waste made up the largest part with 557 tonnes.

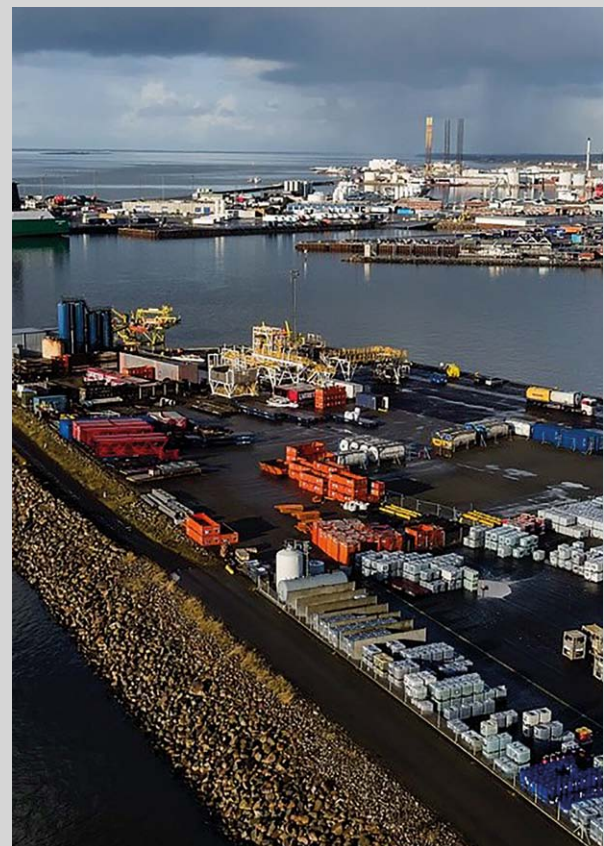
Other environmental issues

The Port of Esbjerg deals with a number of other environmental issues in relation to its own operations:

- Odour, dust and noise problems are limited as the activities causing these often take place far from built-up areas.
- SO₂ and NO_x air emissions stem from the Port's diesel machinery and indirectly from the production of purchased energy.
- Like the municipality's other industrial and urban sites, the Port is classified as potentially lightly polluted soil.
- Part of the port sediment is polluted, however, joint efforts have been initiated under the project Clean Port to improve the environment.

The environmental impact of the companies in the port

The various companies in the Port also carry out activities that may have environmental impacts. The companies are themselves responsible towards the relevant authorities.







Occupational health and safety

The Port of Esbjerg monitors the Port's occupational health and safety situation on a regular basis and makes action plans.

Safety is of the utmost importance to the Port in relation to the persons working with cranes, in the workshops in the surrounding areas, etc.

Although we are continuously striving to prevent accidents, accidents nevertheless occur. The Port's accident prevention measures i.a. include the reporting of near misses for analysis.

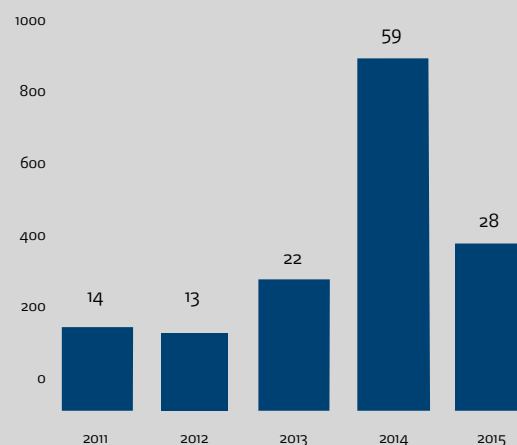
Focus on hazardous substances

The Port of Esbjerg uses kemiguiden.dk to assess all products used in order to limit the use of, among other things, carcinogens.

Occupational injuries and days of absence

	Number of occupational injuries	Total number of days of absence
2015		39
2014		33
2013		0
2012		0
2011		161

Near misses





The Port as a Maritime Industrial Site

Climate Proofing and Clean Port



A climate-proof East Port with plenty of space

The Port of Esbjerg offers flexible infrastructure suitable for the handling of large components before shipment. The opening in 2013 of the East Port added a new port area of 750,000 m² to the Port of Esbjerg.

Like other ports, the Port of Esbjerg is exposed to storm surges, and the expected climate changes will increase this risk. The East Port is future-proof, as the potential climate changes were taken into consideration in connection with the construction of the port facilities. For example, the East Port facilities are placed 4.6 metres above mean sea level.

Due to its size, the East Port is future-proof with regard to the handling of, for example, the ever larger offshore wind turbine components.

Clean Port

The Danish Coastal Authority regularly dredges port basins to maintain sufficient water depths. In certain cases the dredged material consisting of natural sediments is polluted and must be disposed of in an environmentally responsible manner.

The Danish state, the Municipality of Esbjerg and the Port of Esbjerg have agreed on a solution with regard to the disposal of polluted sediment. The solution comprises three steps:

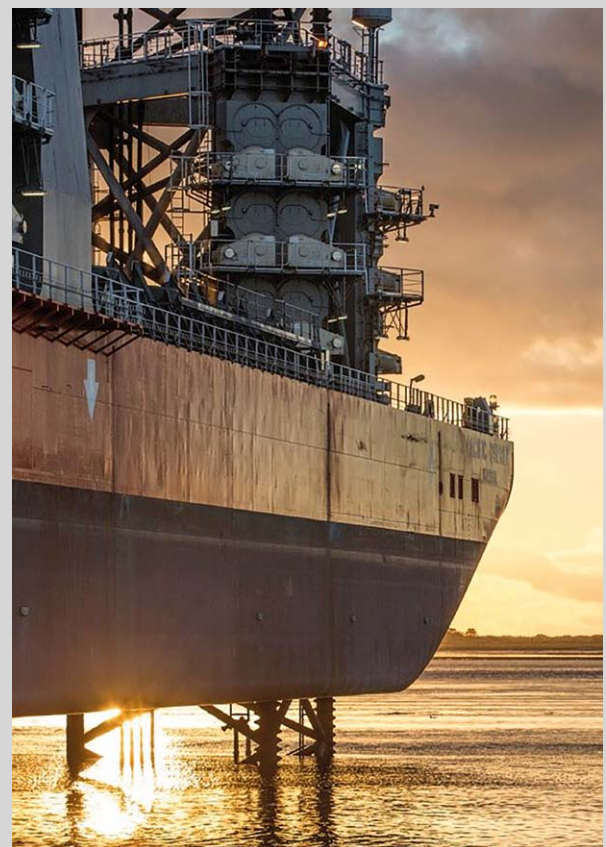
- Closure of a sediment treatment areas (drying areas)
- Disposal of sediment that has settled in the Port over a number of years
- Creation of a new sediment deposit area by the East Port planned for use until 2025.

After 2025, port sediment must be clean enough to be dumped in the Jutland Wadden Sea. Consequently, it is a priority to identify and eliminate existing and future sources of pollution in the Port.

The Danish Coastal Authority, the Municipality of Esbjerg and the Port of Esbjerg, among others, have set up a Source Tracing Committee to collaborate on this issue. When relevant, companies at and around the Port are involved in the source detection work.

Sea level rise

Various climate model calculations based on the UN Panel On Climate Change Report (Scenario A2) warn of 15-75 cm sea level rise by 2100. The projections do not include the effects of stronger winds.





PACIFIC ORCA
LIMASSOL

The Port as a Maritime Industrial Site

Eco-friendly Shipping



Eco-friendly fuel and energy for the shipping industry

Reduction of air pollution from ships is high on the agenda. The use of LNG as marine fuel is one way to reduce air pollution, however, it is not yet a widely used solution. In order for the use of LNG to become more widespread, ports must establish LNG infrastructure and shipping companies must ensure increased demand.

The Port of Esbjerg wants to collaborate with shipping companies and fuel suppliers to promote the use of LNG.

We are involved in a number of European development projects for this purpose. One current project investigates the possibility of establishing LNG tank facilities for ships and supply barges in the port.

The Port of Esbjerg also plans to install new shore-side electricity connection points that can supply electricity to large ships, so that they can turn their engines off when in port.

Stricter rules regarding air pollution from ships

On 1 January 2015, the International Maritime Organisation (IMO) introduced stricter rules regarding sulphur oxide (SOx) emissions from ships in certain areas, including the North Sea area.

Ships can meet the requirements for example by using gas oil, diesel oil, methanol or LNG (liquefied natural gas).

One of LNG's good properties is that it does not release sulphur. In addition, it reduces nitrogen oxide (NOx) emissions by up to 90% and CO₂ emissions by up to 25% in ships with four-stroke engines.





The Port as Gateway

Eco-friendly Transport Solutions



Eco-friendly transport solutions

The environmental impacts of the transportation of goods include among other things air pollution and traffic congestion.

By choosing eco-friendly transport solutions a company can establish an image of being environmentally conscious while also achieving good transport economy.

This could be done by:

- Choosing the right modes of transport – sea, rail and/or road.
- Choosing vehicles/vessels with high environmental standards.
- Optimising capacity utilisation.

A transition of freight transport from roads to ships and trains will reduce both pollution and traffic. This applies especially when large volumes of goods are transported over long distances.

External societal costs of transport

Societal costs of 100 km of transport per tonne of capacity in DKK. Mean value.

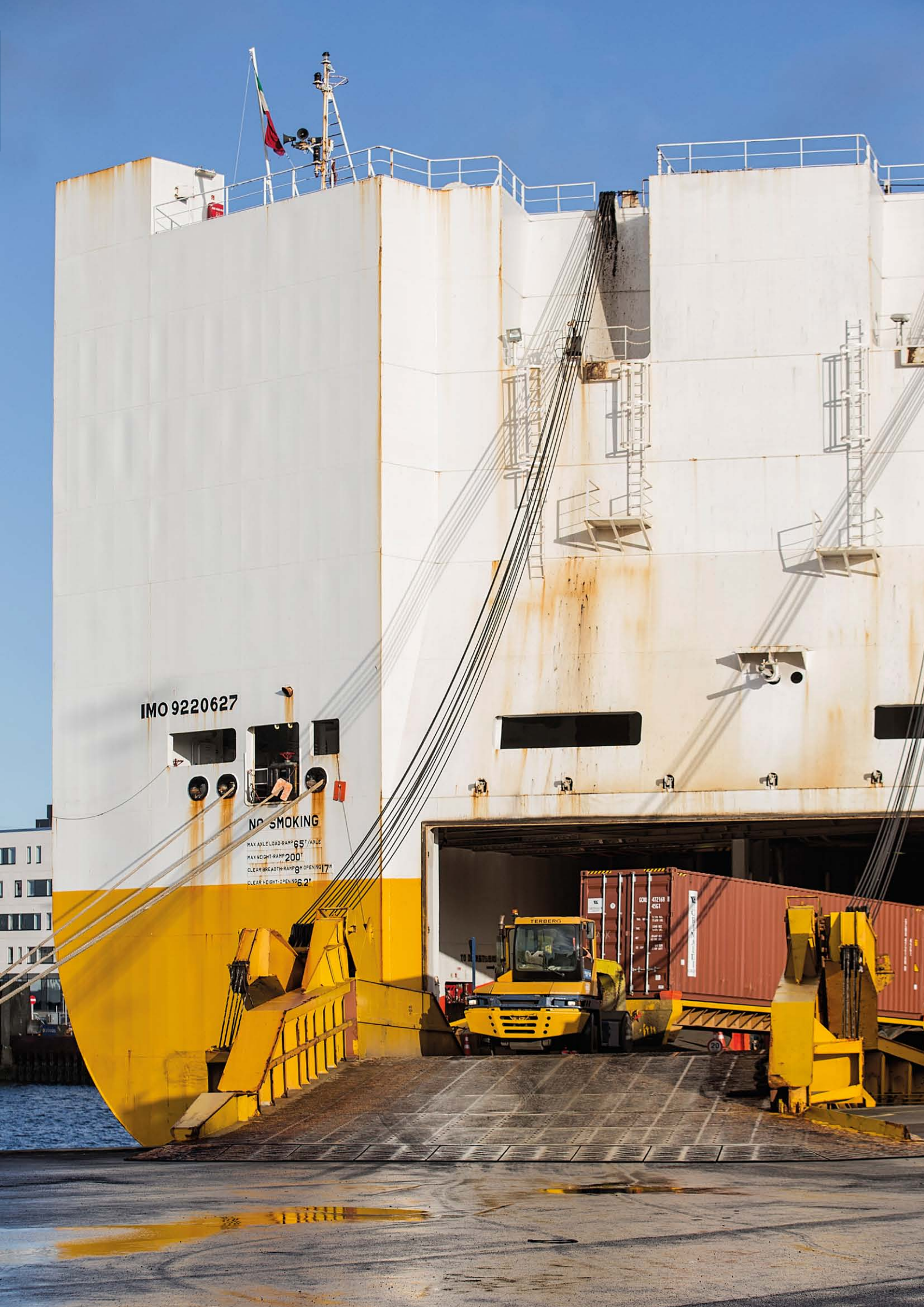
	Coastal vessel	Heavy goods vehicle
Air pollution	7.4	3.2
Climate change	0.1	0.5
Noise	0.0	0.7
Accidents	0.0	8.7
Congestion	0.0	4.0
Infrastructure	0.0	7.1
Total (DKK)	7.5	24.1

Source: Calculated based on the publication
Transportøkonomiske enhedspriser, 2016, DTU Transport

Climate agreements set the course

At COP21 in Paris in 2015, 195 UN countries signed a historic climate agreement aimed at preventing global temperatures from rising by more than 2°C by 2100 - and preferably by no more than 1.5°C.

A majority of the members of the Danish parliament voted for the Energy Agreement of 22 March 2012 that lays down the framework for the measures to fulfil Denmark's international obligations with regard to energy and the long-term change in i.a. the transport industry's energy consumption.



IMO 9220627

NO SMOKING

MAX AXLE LOAD-RAMP 65T/AXLE

MAX WEIGHT-RAMP 200T

CLEAR BREADTH-RAMP 8' OPENING 17'

CLEAR HEIGHT-OPENING 6.2'

472168
4561

The Port as Gateway

Value Chains and Transport Hub



Transport hub

The Port of Esbjerg offers a unique basis for eco-friendly transport solutions taking into account both environmental and climate considerations, the customers' requirements, logistics, freight types, etc.

As a transport hub, the Port of Esbjerg offers a variety of transport types and facilities that can be combined to create maximum benefits for both companies and the environment. The Port of Esbjerg i.a. offers:

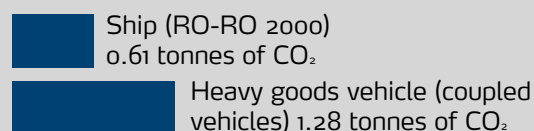
- Good quay and crane facilities
- Modern Ro-Ro ramps
- Direct access to the E20 motorway
- Rail terminal in the port
- BIP – veterinary border control of live animals/ animals products imported into the EU
- Large, closed-off port area that meets the international ship and port facility security (ISPS)

The Port of Esbjerg ties value chains together

The most important function of the Port of Esbjerg is to provide the basis and the facilities for our customers enabling them to operate and develop their business. It is therefore a priority for us to tie together our customers' value chains and value creation and the Port's facilities as transport hub, commercial area and service provider. This includes:

- **Transport, storage, processing and shipping**
Due to the large port areas large components can be transported within the port as well as stored and processed before being shipped. The Port can accommodate many projects at a time thereby minimising our customers' expenses.
- **Construction, operation and repair**
The Port of Esbjerg and the companies in the port offer customer solutions for the entire lifespan of an offshore facility, i.e. from the initial construction phase over operation and servicing to repair work.

Climate impact of freight transport from Esbjerg to Rotterdam (20 tonnes)



Source: Computation at climatecompass.dk

The calculated climate impact of freight transport (20 tonnes) from Esbjerg to Rotterdam by large heavy goods vehicle and RO-RO ship (2000 lane metres). The climate impact of transport by heavy goods vehicle is more than double that of transport by ship.





TERBERG

BLUE
WATER
SHIPPING

BC
738

20

Environment and sustainability memberships



EcoPorts is an environmental network under European Sea Port Organisation giving access to a number of tools and professional networks on environmental issues for the port sector.



GREENET is a public/private partnership promoting green technologies and sustainable development. GREENET covers five Danish municipalities: Billund, Esbjerg, Fanø, Varde and Vejen.



PIANC, The World Association for Waterborne Transport Infrastructure, is a global forum of professionals who have joined up to offer professional advice on cost-effective, reliable and sustainable sea transport infrastructures.

The Source Tracking Committee

The source tracking committee aims to identify existing sources of pollution in the Port of Esbjerg. The committee is a cooperation between i.a. the Danish Coastal Authority, the Municipality of Esbjerg and the Port of Esbjerg.

Advisory Committee For the Jutland Wadden Sea

An advisory committee for the Jutland Wadden Sea serving as a forum for discussion for the many interest groups in the area within the framework of Vadehavssekretariatet, a secretariat operated by the four Danish Wadden Sea municipalities.