Baltic ports – towards climate neutrality – various initiatives

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BPO – who we are?

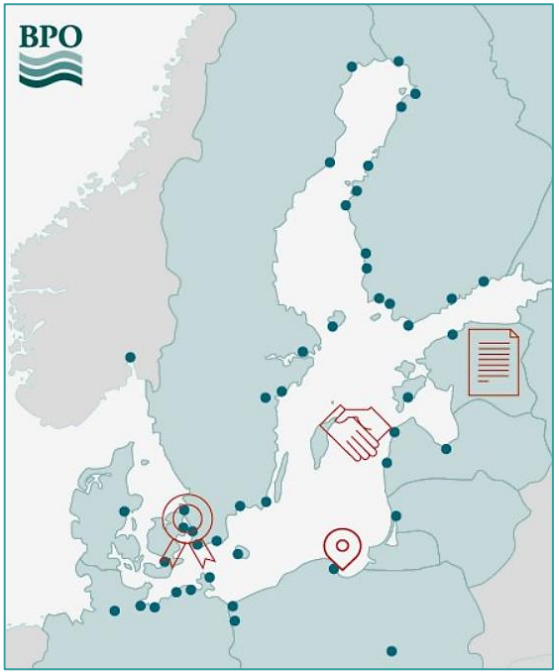
BPO – Baltic Ports Organization

established
October 10, 1991 Copenhagen

nearly 50 members
major ports in the 8 countriess

registered in Estonia
Port of Tallinn headquarter

office in Gdynia
Poland



BPO – who we are?

BPO's mission

The BPO's mission is to **contribute to sustainable development** of maritime transport and the port industry in the Baltic Sea Region, thereby **strengthening its global competitiveness**.

The volume of cargo handled in the Top 10 Baltic ports in 2020-2022 [thou. tonnes]

No.		2020	2021	2022	Change 2022/2021
1.	Ust-Luga	102 602	109 377	124 100	13.5%
2.	Gdansk	48 038	53 213	68 220	28.2%
3.	Primorsk	49 302	52 998	57 100	7.7%
4.	Gothenburg	37 900	36 924	40 492	9.7%
5.	St. Petersburg	59 884	62 031	38 800	-37.5%
6.	Szczecin-Swinoujscie	31 178	33 220	36 810	10.8%
7.	Klaipeda	47 790	45 619	36 100	-20.9%
8.	Rostock	25 100	28 680	28 975	1.0%
9.	Gdynia	24 662	26 693	28 190	5.6%
10.	Tallinn	21 327	22 397	17 761	-20.7%
	Total	447 783	471 151	476 548	1.1%

Source: Actia Forum based on ports' data

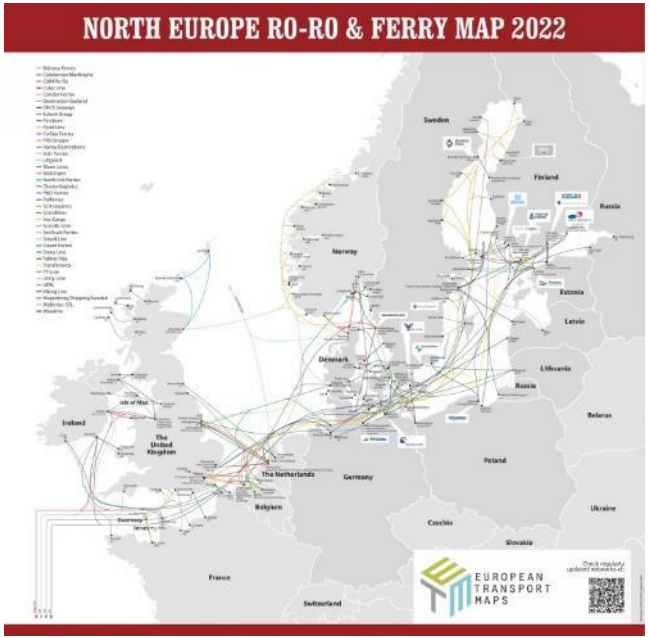
Container turnover in Top 10 Baltic container ports in 2020-2022 [TEU]

No.		2020	2021	2022	Change 2022/2021
1.	**Gdańsk**	1 923 785	2 117 829	2 072 122	-2.2%
2.	**Klaipėda**	640 148	666 775	1 047 941	57.2%
3.	**St. Petersburg**	2 099 649	2 042 358	919 061*	-55.0%
4.	**Gdynia**	905 121	985 950	914 448	-7.3%
5.	**Gothenburg**	776 000	827 991	884 900	6.9%
6.	**Aarhus**	657 786	718 000	759 000	5.7%
7.	**HaminaKotka**	621 402	593 550	629 332	6.0%
8.	**Helsinki**	509 099	466 658	491 793	5.4%
9.	**Riga**	453 577	415 644	460 689	10.8%
10.	**Rauma**	217 932	206 763	208 856	1.0%
	Total	8 804 499	9 041 518	8 388 142	-7.2%

Source: Actia Forum based on the ports' data

**estimated data, there is a lack of official data from the Port of St. Petersburg Authority*

Container and ro-ro & ferry connections



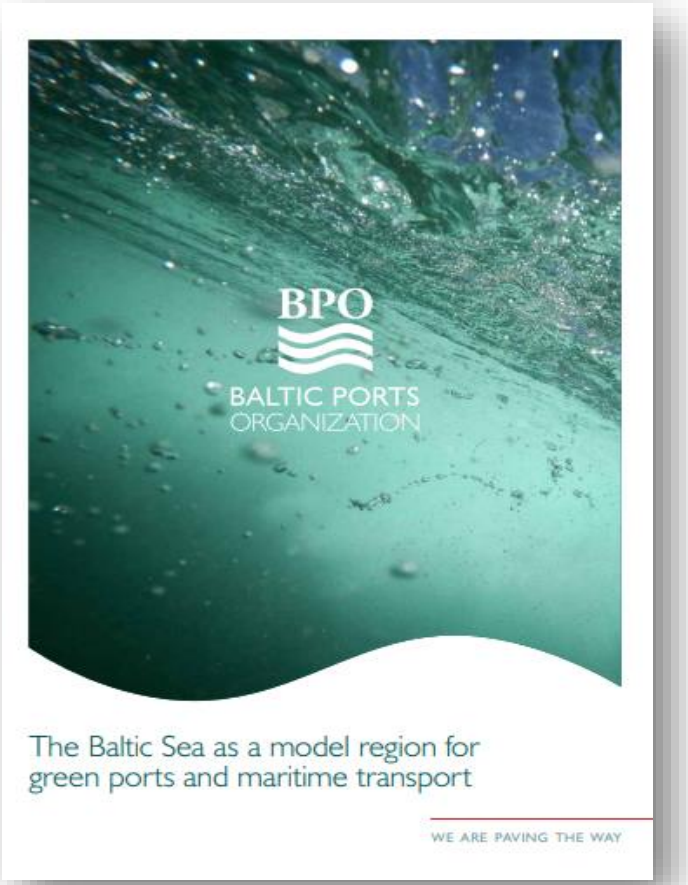
Impact of Russian aggression in Ukraine on the Baltic ports

The Baltic Sea as a model region for green ports and maritime transport

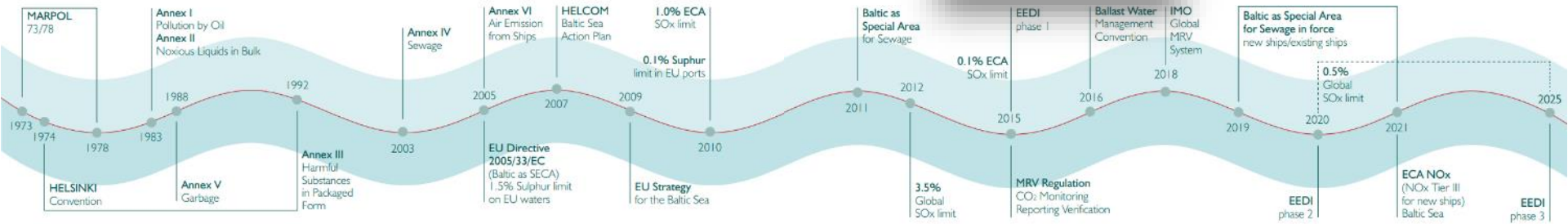
Adopted at 2017

Thanks to:

- **Regulations**
- **Innovation and cooperation culture**



The Baltic Sea as a model region for green ports and maritime transport



Fit for 55 Package

Two of the proposed "Fit for 55" legislation have a significant impact on EU ports: FuelEU Maritime and Alternative Fuel Infrastructure.

The FuelEU Maritime proposal relates directly to the fleet. Most important from the point of view of seaports is the obligation for vessels to use shore-side electricity or zero-emission technology in ports under the jurisdiction of a Member State. Only two types of vessels will be required to be connected to shore power while at berth in ports: container ships and passenger ships.

The direct obligation to deploy shore-side electricity supply infrastructure in ports is governed by the draft regulation on the development of **Alternative Fuels Infrastructure**, repealing the Directive currently in force.

According to the proposed regulation, shore-side power supply infrastructure should be provided for container and passenger ships by 2030.

REfuelEU aviation and FuelEU maritime

Alternative fuels infrastructure

Source: EU

Alternative Fuel Infrastructure (Article 9)

Member States shall ensure that a minimum shore-side electricity supply for seagoing container and passenger ships is provided in maritime ports. To that end, Member States shall take the necessary measures to ensure that by 1 January 2030:

(a) TEN-T core and TEN-T comprehensive maritime ports whose average annual number of port calls over the last three years by **seagoing container ships** above 5 000 gross tonnes, in the previous three years, is above 50 have sufficient shore-side power output to meet at least 90% of that demand;

(b) TEN-T core and TEN-T comprehensive maritime ports whose average annual number of port calls over the last three years by **seagoing ro-ro passenger ships and high-speed passenger craft** above 5000 gross tonnes, in the previous three years, is above 40 have sufficient shore-side power output to satisfy at least 90% of that demand;

(c) TEN-T core and TEN-T comprehensive maritime ports whose average annual number of port calls over the last three years by **passenger ships other than roro passenger ships and high-speed passenger craft** above 5000 gross tonnes, in the previous three years, is above 25 have sufficient shore-side power output to meet at least 90% of that demand.

Source: EU

Current and planned OPS in Baltic Sea Region

Source: Motus Foundation / BPO

Go Baltic.

Project initiative: Baltic ports for climate

The project idea is further development and construction of OPS in Baltic ports (ro-pax, passenger, cruise and container ships).

❑ **Project will be divided into 4 modules:**

- **1st module: OPS Planning module** (all activities that must be plan first),
  - Localization and design works
  - EIA & permissions
  - Business and financial modeling.
- **2nd module: Innovative solutions leading to reduction of GHG in ports**
  - Local energy generation for ships
  - Mobile and scaling solutions
  - Other port-ship solutions

Project initiative: Baltic ports for climate

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❑ **Project will be divided into modules:**

- **Module 3: Stakeholder platform module**
  - OPS for container ships (***New***)
  - exchange of expertise, knowledge, views for better planning and successful implementation of the planned activities;
  - standardization and procedures;
  - will consists of ports, port operators, port users, shipping lines, bunkering companies, energy providers, administration, etc.
- **Module 4: Project management & dissemination module**
  - project must be managed, organized, reported and promoted according to EU standards;

Project Idea: Baltic ports for climate

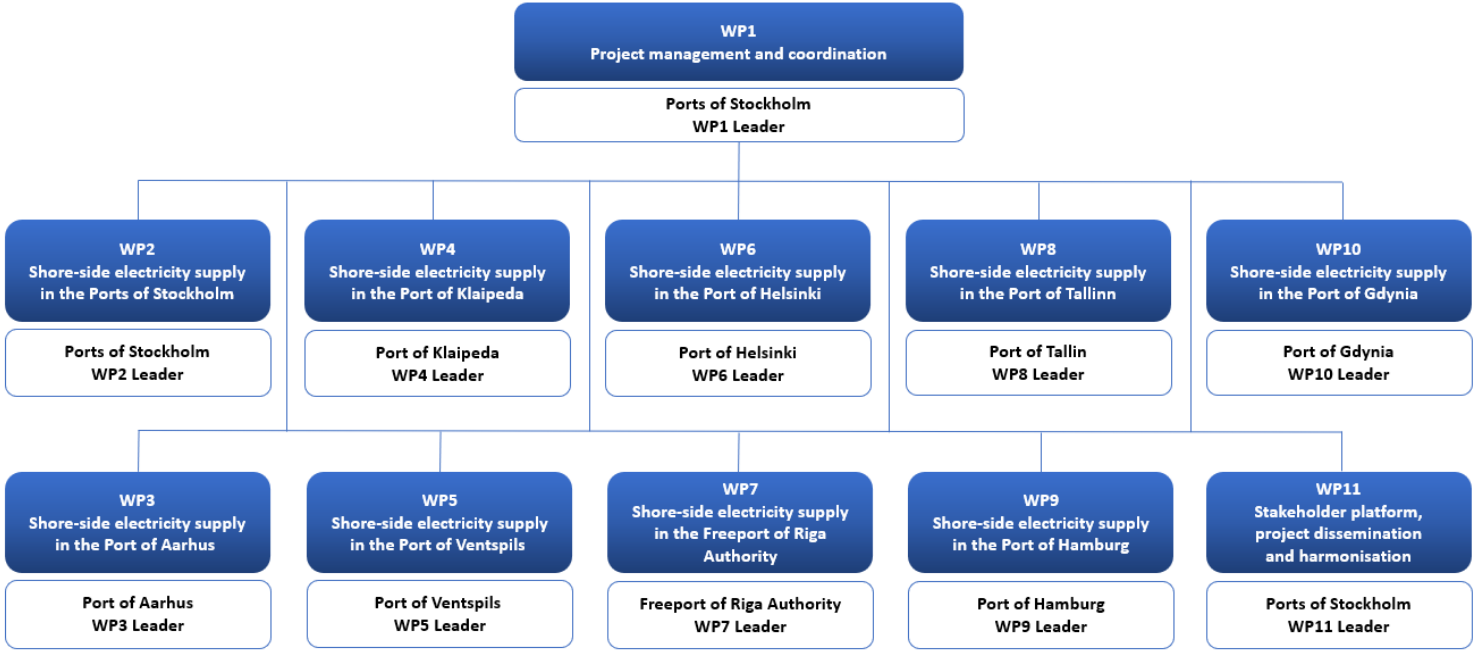
The project idea is further development and construction of OPS in Baltic ports (ro-pax, passenger, cruise and container ships).

❑ **Time framework:**

- **Planning module of new OPS projects –** 2 years,
- **Innovative solutions leading to reduction of GHG in ports** – 2 years
- **stakeholder platform module** – 2 years,
- **project management & dissemination** – whole project duration;

Note: two integrated application and projects for core and comprehensive networks (separate approach is needed) would be prepared.

Project Idea: Baltic ports for climate



Project initiative: Baltic ports for climate

Partners

- **Main partners:**
  - Freeport of Riga
  - Port of Hamburg
  - Port of Tallinn
  - Port of Ventspils
  - Port of Klaipeda
  - Port of Helsinki
  - Ports of Stockholm
  - Port of Gdynia
  - Port of Aarhus
- **Supporting partners:**
  - Baltic Ports Organization (BPO)

Project application Baltic ports for climate was successfully delivered to CINEA on 17 January 2023!

Go Baltic.

Review of selected Baltic ports' efforts towards better climate

Source: https://www.portofaarhus.dk/en/sustainability/

Port of Aarhus

For several years, Port of Aarhus has been working towards a goal of becoming a CO2-neutral company by 2030, and they are well on their way.

- **Shore power**

The Port of Aarhus' own ships use shore power, and at the ferry terminal in the Eastern port they have established shore power for Molslinjen's ferries. It is their goal that in the long run they will be able to deliver 100 pct. green power to shore-side power plants.

- **Green engines**

They are constantly replacing their cars, ships, cranes and machines with more sustainable models. Diesel engines are being replaced by petrol/electric engines that also have higher efficiency.

Source: https://www.portofaarhus.dk/en/sustainability/

Copenhagen Malmö Port (CMP)

Copenhagen Malmö Port (CMP) is aiming to become one of the most sustainable ports in the world by 2025.

COPENHAGEN MALMÖ PORT

SHORE POWER FACILITY FOR DFDS

Through a joint effort, CMP and DFDS have begun work to supply the Oslo ferries with electricity from shore. It is anticipated that the facility will reduce CO_2 emissions by 912 tonnes per year, and reduce nitrogen oxides (NOx) by an estimated 18 tonnes and particles by 0.4 tonnes per year.

NEW TECHNOLOGY, LOWER ENVIRONMENTAL IMPACT

Compared with older models, the new loaders in dry bulk use about 30 cubic metres less diesel per year. Furthermore, the air emissions are lower and the machines make less noise.

FOCUS ON RENEWABLE ENERGY

CMP only purchases green electricity that is generated from renewable sources of energy. Solar collectors have been installed on a staff building in Copenhagen to heat up the water in the changing-rooms.

Source: https://www.cmport.com/about-cmp/sustainability/

Port of Tallinn

- Energy efficiency and sustainable consumption. Port of Tallinn has set themselves the goals of improving energy efficiency, covering 90% of their energy needs with renewable energy and consuming natural resources sustainably. Their long-term goals in this priority area are achieving climate neutrality by 2050 and maximising the use of renewable energy.
- Buying only renewable (wind and solar) electricity for own use since February 2021. 1% of electricity consumption was covered with solar power produced with own solar panel plant.
- Using the onshore power supply system, which helps improve air quality and reduce noise and vibration both in the harbour and the city.
- Saving energy on street and warehouse lighting: the energy consumption of outdoor lighting decreased by 10% compared to 2020.
- Their long-term goals in this priority area are achieving climate neutrality and zero emissions from ships staying in our harbours by 2050.

SDG 7.2
Increase global percentage of renewable energy

SDG 7.A
Invest in and facilitate access to clean energy research and technology

PORT OF TALLINN

Source: https://www.ts.ee/wp-content/uploads/2022/04/Tallinna-Sadam-Annual-Report-2021-pdf-copy.pdf

Port of Helsinki

The Port of Helsinki is committed to implementing the carbon-neutral Helsinki action plan. The Port's carbon neutrality goals:

- Reducing vessel emissions by at least 25% by 2030.
- Reducing emissions from heavy traffic by 60% by 2035.
- Reducing emissions from the machinery in the port areas by 60% by 2035.
- With regard to its own emissions, the Port of Helsinki will be completely carbon-neutral by 2030.

The goal of the carbon-neutral Port 2035 programme is to reduce vessel emissions by a total of 25% by 2035. Progress towards the goal is made:

- by building onshore power supply connections at berths;

Source: https://portofhelsinki.fi/en/responsibility/environmental-responsibility

Port of Naantali - Concrete initiatives

Port of Naantali is constantly developing their operations to be more environmental friendly. All parts of the port have environmental permits that control operations. While the permits set a minimum level for the operations, their targets are higher.

Concrete initiatives:

- **Shore-side power supply system;**
- **Automatic mooring system;**
- **Sustainable lighting system based on the latest LED technology;**
- **Using a geothermal solution for heating.**

Source: https://www.esitteemme.fi/portofnaantali/WebView/

Freeport of Riga

„The Freeport of Riga is one of the greenest and most environment-friendly ports in Europe. Environmental management in the port is provided in compliance with the ISO 14001 standard requirements."

FREEPORT OF RIGA AUTHORITY

Development of Infrastructure on Krievu Island for the Transfer of the Port Activities from the City Centre »

Solar collectors have been installed on the roofs of the Freeport of Riga buildings »

Management of the Freeport of Riga territory »

Go Baltic.

Source: https://rop.lv/en/green-port; https://rop.lv/en/projects?kategorija=1

Port of Klaipeda

2030 ambition:

- **European Green Deal** (ESPO Green Guide compliance, PERS certificate, Eco Ports network membership).
- **Cohesive and sustainable port operations (Offshore Power Supply (OPS)** stations for ships, efficient operational system of surface wastewater, alternative fuel ships, proactive environmental unit, promotion of community outreach).
- **Zero-emission port** (rainwater collection stations and reception facilities, hybrid/autonomous Port authority fleet).

Source: https://portofklaipeda.lt/en/for-the-community/environmental-protection/

Port of Gdynia

- **CO2 mapping in the port;**
- **Fuel and energy transformation:**
  - Infrastructure and connections for powering vessels with electricity during stays in the Port of Gdynia;
  - Analysis of the possibilities and application of renewable energy technologies in the Port of Gdynia;
  - LNG fuel bunkering points;
  - Electric vehicle charging point;
  - The use of hydrogen in the port of Gdynia.

Source: https://www.port.gdynia.pl/wp-content/uploads/2021/09/csr_2021__final.pdf

Ports of Stockholm

Climate targets:

Current/target		
2020	2025	2030
800 ton	400 ton	0 ton

Target 3:

- Ports of Stockholm operations entirely fossil fuel-free by 2030 at the latest.

Start year/target		
2018	2023	2027
35,56 kWh/tusen kr	-5%	-10%

Target 4:

- Efficient energy use by Ports of Stockholm’s operations.

Environmentally beneficial services for shipping:

- Onshore power connection for vessels;
- Environmentally differentiated port fees.

In Port of Stockholm's organisation and in buildings:

- Energy efficiency;
- Reduced fossil fuel emissions:

Source: https://www.portsofstockholm.com/about-us/environmental-work/

Port of Trelleborg – concrete initiatives

Energy is the key – As stated in the Climate Report, the key to reducing the port's emissions is to enable customers to reduce their emissions:

- Solar park (2,200 square meters that produces over half a million kWh every year);
- Wind turbines (will produce an estimated 12 megawatts, or 12 million kWh per year);
- Onshore power supply (OPS);
- Charging infrastructure:

  The port's own vehicles are charged in the port's charging infrastructure. However, the demand for charging and charging stations is constantly increasing and there are plans to expand the charging infrastructure.

- Low energy lighting:

  Lighting accounts for a significant part of the port's energy consumption and it is important to use low energy lamps. The port also uses smart control and timers to only light up where and when needed.

Source: https://www.trelleborgshamn.se/en/english/sustainable-port/sustainability-and-environment/energy/;
https://www.trelleborgshamn.se/en/english/sustainable-port/sustainability-and-environment/waste-water/

Conclusions:

- Baltic ports applied various efforts to protect the climate
- Baltic ports for climate project is an example of regional approach towards climate change
- Fit for 55 package will have a big impact on ports and shipping markets in EU and Baltic region
- Climate and sustainability have become a part of the development strategy for majority of Baltic ports

Go Baltic!

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