Clean Shipping Vision

Emission-free shipping by 2050

1. Foreword

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We're facing a climate crisis. The earth is heating up faster than expected, and the consequences are being felt the world over. We must transition from fossil to sustainable fuels to limit global warming. Port of Amsterdam contributes towards reducing emissions from shipping. We do this by committing to the development of a sustainable port that is increasingly smarter, faster and cleaner.

In terms of greenhouse-gas emissions, shipping is more favourable than other forms of transport. But transport by water still accounts for almost 3% of global greenhouse-gas emissions. We need to do better. There are also major gains to be made in improving air quality within the sea shipping sector.

We embrace our responsibility as a port to play our part in the maritime industry. That's why we help customers and partners to make the required sustainability transition, promote the production and use of sustainable fuels in the port and facilitate innovative projects.

It takes time and large-scale investments to develop new technologies, methods and business models. That's the only way to gain experience, create awareness and achieve breakthroughs. We are acting now so we can achieve results later, including elsewhere in the chain.

We're skimming a stone in the climate pond in the hope others will follow suit. Because the more stones there are, the more ripples we make. Through this vision we fulfil our responsibility to lead by example. Together with our partners, we're leaders in making the planet more sustainable. In the coming years, we will reduce our footprint and leave the world cleaner than we found it.

Milembe Mateyo
Harbour Master
Port of Amsterdam

2. Why this revised vision?

Why this revised vision?

The large global industries must rapidly become more sustainable to prevent the earth from heating up even further and to improve air quality. This includes the shipping industry. Through this vision, Port of Amsterdam is taking the lead in driving and accelerating sustainability in this sector.

The decision-making process for taking sustainable measures for shipping is too slow. Port of Amsterdam influences this process whenever we can. We do this both by making our voice heard in international organisations and working groups and by demonstrating that there's a different way. We are a Multi Fuel Port, so we will start offering all clean fuels for shipping in the coming years.

We also facilitate and encourage shipping to become more sustainable. We're implementing the infrastructure and creating the preconditions for this transition. What's more, we are rewarding positive behaviour and setting pricing policies accordingly. We are also making our own fleet more sustainable, helping service providers at the port become more sustainable and carrying out demonstration projects with our network.

Shipping in the Amsterdam port area will be emission-free by 2050

We are working towards emission-free shipping. Emissions can be generally divided into two categories: greenhouse gases, such as CO_2, and emissions that reduce air quality, such as nitrogen oxide (NO_x), sulphur oxide (SO_x), particulate matter (PM) and soot.

The route to emission-free shipping

Thanks to the first Clean Shipping Vision from 2017 to 2021, we have already achieved a great deal in improving local air quality. In 2018, we carried out an emissions inventory to calculate the total emissions from industry and vessels. The installation of onshore power supply at the port is based on this inventory. We have also set up an LNG bunkering facility and have already adapted the port regulations for sustainable fuels. But this is only the beginning. To continue operating as a sustainable port, we must achieve much more, both in terms of air quality and climate.

What do we mean by emission-free?

- Greenhouse gases: emission-neutral (the carbon chain is closed)
- Air quality: no more emissions (no more pollutants emitted)

Our approach focuses on emissions into the air from vessel engines and other on-board powered systems. We are also taking action to reduce emissions released into the air from transferring cargo, such as volatile organic compounds. This also involves reducing odours and noise.

Equally, we are focusing on reducing emissions into the water from shipping, including wastewater and ballast water. Finally, we believe it is our job to provide suitable facilities for ships to dispose of their domestic waste and cargo residues properly.

This revised Clean Shipping Vision sets out our ambitions until 2050

This version is more ambitious than the previous one, and that is reflected in our approach and objectives. We have put together a port-wide Clean Shipping Team (CST) tasked with actions that help us achieve the goals under the vision. Shipping in the Amsterdam port area will be emission-free by 2050. That is the goal that the CST is working towards – together with customers, partners and other stakeholders. It is a challenging objective.

We have designated two interim points when we will assess our progress against 2018 and check whether we are on course towards 2050:

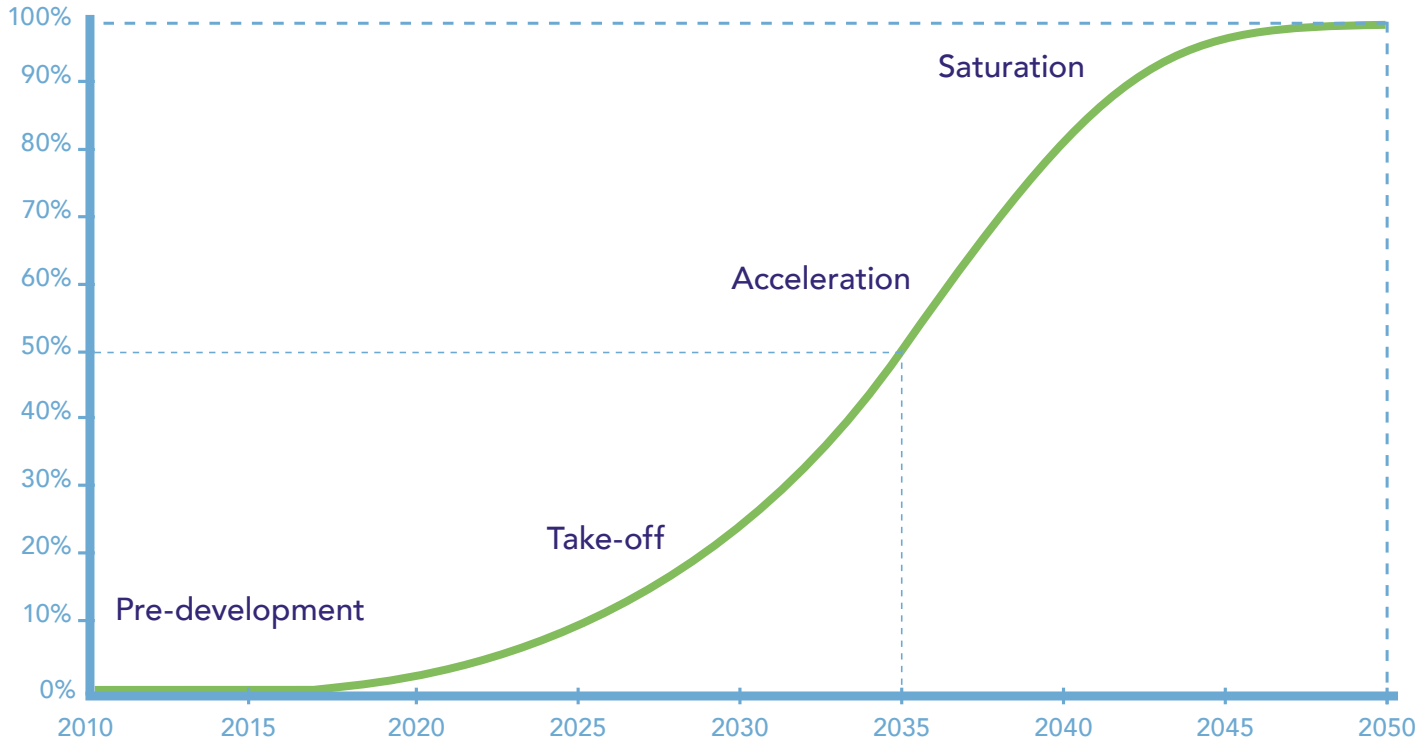
2025: We are on course for emissions-free shipping in the port.

- Air quality: 10% reduction in NO_x, SO_x and PM emissions from shipping compared with 2018
- Greenhouse gases: 10% reduction in the port area compared with 2018.

2030: Emission-reduction is accelerated.

- Air quality: 20% reduction in NO_x, SO_x and PM emissions from shipping compared with 2018
- Greenhouse gases: 15% reduction (seagoing shipping) and 30% reduction (inland shipping) compared with 2018
- Sea cruise ships are emission-free at the quay

2050: Shipping in the Amsterdam port area is emission-free.



Sustainability of shipping

We expect to achieve greater sustainability of shipping in the North Sea Canal area through a logical growth pattern, or an S-curve (see diagram). The actions we are taking now will not lead to major changes straight away, but over time they will accelerate the process of making the vessels entering our port area more sustainable. We believe that the turning point will come in around 2030. But it doesn't stop there. From 2030, we must also take new innovative measures to continue supporting the acceleration. After 2040, the sustainability process will slow down, so vessels lagging behind will need to step up their efforts or they will not be allowed to enter the port. This means we will have created a port with only emission-free vessels by 2050.

3. What do we envisage?

What do we envisage?

Shipping in the Amsterdam port area being emission free in 2050. It's a huge ambition that motivates us to push ourselves to the limit.

Vessels in our Multi Fuel Port are able to bunker clean fuels – even fuels that haven't been invented yet. Vessels won't produce any emissions in our port that harm air quality or contribute to global warming. Alternative technologies are available to vessels that don't use clean fuels. We also prevent emissions from unnecessary movements and moorings.

Three developments play a crucial role in the route towards 2050:

Maritime Energy Carriers (MEC),
Port Emission Reduction Technologies (PERT) en
Port Call Optimization (PCO).

Maritime Energy Carriers (MEC)

We offer sustainable marine fuels at the port, in cooperation with our partners. We also actively encourage vessels to use these fuels. In doing so, we improve local air quality and reduce greenhouse-gas emissions in the Amsterdam Metropolitan Area. We are a Multi Fuel Port for clean fuels. As such, we are developing a safety framework through legislation and regulations, supporting and stimulating green corridors and improving bunker infrastructure.

Port Emission Reduction Technologies (PERT)

We harness technology to reduce emissions from vessels at berth at the port. This improves the air quality while reducing noise, CO_2 and particulates. In cooperation with our partners, we offer onshore power supply (OPS) and mobile power with floating batteries. We also provide locations for port-based degassing facilities to reduce cargo emissions when cleaning tankers. We offer total coverage of OPS facilities for public berths for inland barges in the city, cruise ship berths and at the cruise terminal.

Port Call Optimization (PCO)

We reduce emissions by handling shipping efficiently. We optimise the way we plan and manage vessel traffic movements at the port. We also provide continuous vessel passage, with shorter waiting times and fewer vessel movements. This means a shorter stay at the port and therefore reduced local emissions.

4. How do we achieve this?

Port of Amsterdam has four instruments to achieve the desired results. We facilitate, promote, regulate and influence.

MEC/PERT/PCO

> Facilitating
Promoting
Regulating
Influencing

4.1 Maritime Energy Carriers (MEC)

Multi Fuel Port

We create the preconditions for using sustainable marine fuels in the port area. We produce and supply new energy sources, guarantee the presence of feedstock and create a safe bunkering infrastructure. This is how we hope to accelerate the transition towards sustainable fuels.

Port of Amsterdam provides sufficient of clean fuels for shipping in our area. We attract companies that produce these fuels. We make sufficient renewable and sustainable electricity available for this purpose. Moreover, we strike a balance between supply and demand, so we can justify investments in bunkering infrastructure. We also provide small-scale bunker infrastructure for pioneers. As soon as a clean fuel is put into use en masse, we facilitate the establishment of companies in this sector.

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Available and safe

Together with other ports, we create green corridors to make new fuels available, both in the destination port and the port of departure. Sustainable fuels are guaranteed to be available in these clean fuel corridors.

We meet the preconditions for bunkering these clean fuels. We also align the regional port by-laws to this. Before we offer a new fuel for the first time, we ensure that a sound safety framework is in place first. We guarantee the maximum level of external safety, system safety and operational safety, working with the public safety services to prepare for any incidents.

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- > Promoting
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- Influencing

Incentives

As a Multi Fuel Port, we promote the use of sustainable fuels by rewarding positive behaviour and structuring our pricing policy accordingly. We have incentives in place to reward vessels that use sustainable fuels. Specifically, we allow them to pay reduced harbour dues and sponsor the partners involved, such as vessel owners, terminals and service providers. We also financially support companies that produce clean fuels. Not only are early adopters rewarded with financial incentives, but we also give them a stage.
We explore the possibilities for VIP services for vessels that operate sustainably, for example by giving them priority to berths.

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Environmental zoning

We set up an environmental zoning system for shipping and involve the companies at the port in this process. We also make this zoning more and more stringent and monitor compliance. We regulate the use of sustainable fuels by applying local, national and international laws and regulations.

In time we will no longer allow vessels that use polluting fuels at certain berths or we require them to use alternatives to reduce emissions.
If necessary, we use tender and procurement procedures to select maritime service providers that use clean fuels.

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Cooperation

We exercise our influence in different ways to encourage vessels to use sustainable marine fuels available at the port. We set a good example by working with stakeholders and consulting with vessel owners, terminals and government agencies. We lobby for legislation and regulations on sustainable fuels and for a carbon tax to make sustainable fuels cheaper.

We create regional networks to encourage stakeholders to collaborate and share their knowledge. We also do this at a national and international level, for example with ports that welcome the same vessels as Port of Amsterdam. We leverage our network to produce more sustainable feedstock, help develop new fuels and ensure those fuels are available at our port.

We also use our network to ensure the availability of bunker infrastructure and enter into dialogue with terminals to allow vessels to bunker new fuels along their quays. We have ongoing conversations with maritime service providers on switching to clean fuels and with operators, shipping agents and charterers to encourage them to use clean fuels when transporting their goods.

MEC/**PERT**/PCO

> **Facilitating**
> **Promoting**
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> **Influencing**

4.2 Port Emission Reduction Technologies (PERT)

Port facilities

Port of Amsterdam provides different technologies to reduce emissions. We focus on onshore power supply (OPS) by upgrading existing facilities, installing new features and providing mobile shore power, such as in the form of floating batteries.

We install OPS installations at the Passenger Terminal Amsterdam. We explore the possibility of installing new OPS facilities for the mooring facilities and locations where transhipment between tankers take place. Plus, we conduct research into the development of onshore power supply for sea shipping at terminals in the port area. We also look into the alternatives to onshore power supply, such as exhaust-gas capture units.

We also focus on vapor recovery units that capture cargo vapours from tankers and facilitate locations in the port for these units. We offer industrial degassing facilities at the public quays for substances that present the highest environmental and health risk and are prohibited from being released into the atmosphere by law.

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> **Influencing**

Incentives

We promote emissions reduction in several ways. One way is by making it financially attractive to use onshore power supply, for instance through a discount on port tariffs or lower shore power rates. As long as there is not a legal ban on the degassing of certain substances, we continue to promote the use of degassing facilities for inland tankers.

MEC/**PERT**/PCO

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Influencing

Local rules

We regulate emissions reduction at different levels. For example, the port regulations allow us to introduce local environmental requirements for certain berths. We introduce further restrictions and bans on the use of generators at berths close to the city. This generator ban will be extended as fixed and mobile onshore power supply facilities become more commonplace.

When possible, we anticipate international regulations on mandatory onshore power supply. We also investigate the possibility of making OPS compulsory at our berths where relevant.

We launch a process towards a more comprehensive ban on degassing for all volatile organic compounds. We align this with regional, national and European regulations. If necessary, we will lay this down in the local port regulations. While we would prefer not to introduce a ban on degassing locally because of a waterbed effect, we will not shy away from this measure if it can protect the local environment.

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Consultations

Up front, we conduct consultations with relevant stakeholders on onshore power supply. These are held not only with regional and national governments and the EU, but also with terminals, shipping companies and relevant trade organisations. We aim to strike the right balance between economic and societal interests. With regard to degassing installations, we are committed to a practical and uniform regulation applied across Europe. This is how we hope to reduce emissions to a maximum and prevent a waterbed effect.

MEC/PERT/**PCO**

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4.3 Port Call Optimization (PCO)

Digital port facilities

We have three ways to handle shipping efficiently. Firstly, we are working to create an optimal data infrastructure and harmonising data standards. We develop a sustainable digital platform to share data on a vessel's call, route and schedule. This allows us to plan vessel calls more efficiently and reduce its emissions for each visit. Together with shipping agents and terminals, we have launched a pilot for the sea shipping industry – the Port of Amsterdam Collaboration Tool (PACT) – which we will expand further in the coming years.

Secondly, we implement an optimal port infrastructure to make shipping handling more efficient, both at berth and while in transit. We investigate the use of smart and sustainable mooring technologies in new and existing locations. We look at whether we can incorporate sensor technology into the process of managing free berths for inland shipping. We position vessel facilities strategically to avoid unnecessary movements. This already applies to berths and waste collection facilities, and in the future, it will cover battery charging points, for example.

Thirdly, we approach the emissions inventory in a structural way. Based on the existing inventory we are developing an emissions model, so that we can monitor emissions from shipping annually.

MEC/PERT/**PCO**

- Facilitating
- **>** Promoting
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Incentives

We encourage the sustainability and efficiency of shipping in two ways.

Firstly, we provide financial incentives. We reward vessels that exceed the legal standard, using the Environmental Ship Index (ESI). Through the Green Award certification program, we encourage shipping companies and vessels to invest in cleaner fuels, innovative techniques and optimal vessel design. We will also apply price differentiation for the sea cruise as of 1 January 2022, so that less clean ships pay more. We are investigating whether we can reward a shorter stay at the port, for example by offering a more attractive port tariff.

Secondly, we support shipping at an operational level, for example by giving priority to the cleanest vessels in using the berths near the city centre. And we also help our customers come up with ways to operate vessels more efficiently, such as by using backloads to minimize the number of ships leaving empty.

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Admission policy

We regulate efficient port calls in three ways. First of all, we allow simultaneous operations under the port regulations. This includes bunkering, waste disposal and repairs during loading and unloading. This reduces the length of a vessel's stay at the port.

In addition, we tighten our admission policy. For example, we introduce local environmental requirements for certain berths. In future, the most polluting vessels will not be allowed to moor here. Ships that do not meet our requirements are no longer allocated a berth near an inhabited area. In addition, we no longer allow sea cruise ships with the oldest type of engine to berth at our cruise terminal. This will increase the proportion of cleaner ships at our port.

MEC/PERT/**PCO**

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Cooperation

We consult with the port terminals to make it possible to carry out simultaneous operations during loading and unloading. Together with terminals and shipping companies, we are optimising shipping movements with minimal emissions at sea and in ports. This is why we focus on just-in-time arrival, optimal loading rates and port emission-reduction technologies.

We enter into global partnerships through the International Association of Ports and Harbors (IAPH) including setting up green shipping corridors, standardising bunkering safety procedures and reviewing international standards for global incentive systems.

5. In conclusion

We are ambitious

And we realise that. It isn't easy to make the waves needed to make shipping more sustainable. That's why we must pull out all the stops. The actions that we and our stakeholders take accelerate the drive to make shipping more sustainable. We work actively and with an agile team on our ambitions.
We constantly check our course and make any needed adjustments as we navigate to emission-free shipping by 2050.

Be part of a better port

Port of Amsterdam