BPA Briefing: Open-Loop Scrubbers in Ports

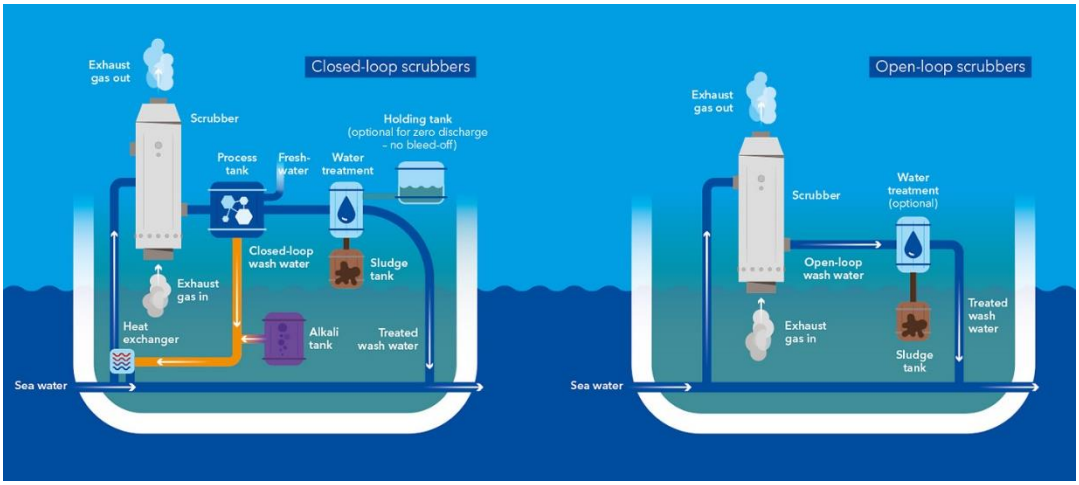

Image from DNV

What are 'scrubbers'?

Exhaust gas cleaning systems, commonly known as 'scrubbers', are systems installed on ships to remove certain substances from exhaust gases. They have become prevalent in recent years as the International Maritime Organization (IMO), the UN body that governs international shipping, introduced a global cap on the amount of sulphur content used in shipping fuels in 2020. The maximum amount of sulphur permitted, without a scrubber, is not 0.5% across the world, although the east coast of the UK is within an Emissions Control Area (ECA) with a sulphur limit of 0.1%.

Scrubbers are an alternative option for complying with the IMO sulphur cap, on the condition that they are as effective in reducing emissions as using low sulphur fuel. The UK Government supported this position at the IMO.

Scrubbers are fitted into exhaust stacks and 'scrub' sulphur from the exhaust gas. The contaminants removed from the exhaust are then either collected in a tank (a closed loop system) with the waste being unloaded at a port. or expelled into the water (an open-loop system). Some systems have the option of switching between the two modes (hybrid systems). The vast majority of scrubbers are open-loop.

What are the rules on their use?

The Maritime and Coastguard Agency (MCA) is the primary regulator in this area. The MCA permits the use of open-loop scrubbers in UK waters, although the MCA's position has always been that individual harbour authorities are responsible for governing their use within their harbour areas. This reflects the fact that ports are all very different and the potential impact on the environment will be different.

Some shipping companies appear to believe that regulations permit them to use open-loop scrubbers anywhere, including in ports, if they demonstrate that there is no adverse impact on the ecosystem of the port, although this is not accurate.

Some countries have introduced bans or restrictions on the use of open-loop scrubbers in coastal and/or port areas. From our engagement with UK Government, there does not appear to be any appetite for a blanket approach here.

In the UK, BPA research found that many ports manage the use of open-loop scrubbers in some way. The most common method of management was 'by permission' of the harbour master. Ports also managed their use by issuing a notice to mariners (advisory notices and updates issued by ports with important safety, navigational and other information relevant to shipping), as well as using general directions and byelaws.

What are their impacts on the environment?

The use of open-loop scrubbers at this scale is a relatively new development and there is a regular stream of research into their impacts, both in the open ocean and in coastal and harbour areas.

Some ports have raised concerns about the potential impact of open-loop scrubbers. The primary concern raised has been on the potential impact on sediments within the port, particularly by ports that have areas that are 'locked' or in areas of low fluvial flow, where contaminants may be more likely to accumulate on the sea or riverbed.

Most ports dredge their harbours in order to keep berths and navigation channels safe for shipping. The amount and frequency of dredging necessary by ports varies widely. The disposal of dredged material is subject to strict regulation and there is concern from some ports that contaminants from open-loop scrubbers may impact their ability to gain consents to continue this activity, which is critical to the operation of a port.

Some ports have told us that evidence points to scrubbers being better for air emissions than using ultra-low sulphur fuel and this in some cases has been welcomed, particularly where there may be existing air quality issues.

The BPA has been monitoring research into the impacts of open-loop scrubbers by government agencies and researchers around the world. There has been some conflicting conclusions, although there appears to be an emerging concern about the impact of such systems in certain circumstances, such as areas of low fluvial flow. Our Literature Review is available on our website here.

BPA View on 'scrubbers'

Every port is different in terms of their environment and local conditions. The potential impact of open-loop scrubber washwater can vary widely and is not yet well understood. We are working to close the information gap, and welcome collaboration with companies and researchers to better understand the environmental impact of scrubbers. In the meantime, we will continue to support individual ports in their decisions, whether they decide to restrict scrubbers or not. There is no right or wrong approach to managing their use.

We have a range of resources on our website to help ports, regulators, and the wider industry help make better-informed decisions regarding scrubbers. We do not take a view on the use of scrubbers at sea, where evidence seems to suggest the impact is negligible. The concern is rather on their cumulative effects on sediment in ports, particularly in areas of low tidal exchange.

What is the ports industry doing?

The BPA has been convening ports to discuss the potential impact and management of open-loop scrubbers for several years. We are also following emerging research and practice in other countries and talking to shipping representatives. In February 2024 we published a literature review, available on our website.

Some ports have already taken action to manage the use of open-loop scrubbers. Others are monitoring their impact or otherwise keeping the situation under review. The potential impact of these systems will vary by port, and so we are sharing good practice.