

ECOSPRAY: MOVING INTO THE ASIAN MARKET TO CONFIRM INDUSTRY LEADERSHIP

The shipping sector is evolving rapidly, driven by the need to adopt sustainable strategies in line with the 2050 targets. In this context, the leading companies are strengthening their global presence by focusing on innovation and strategic partnership to face the industry's future challenges.

STRENGTHENING FAR EAST POSITION

Ecospray, the specialist in integrated solutions for the sustainable reconversion of marine and land industries, has entered into a partnership with Chinese manufacturer Jiangsu Zhenhua Environmental Protection Technology (Zept), with the aim of improving competitiveness with Eastern manufacturers.

Under the agreement, Ecospray oversees the design, engineering and supply of critical system components, such as spraying nozzles, PLC and software, and water analysers. Meanwhile, Zept produces and purchases locally additional equipment and components, following Ecospray's specifications and design guidelines.

This partnership enables Ecospray to provide its well-established, high-quality exhaust gas cleaning systems (EGCS) – recognised for their top-tier materials, design and performance – at a competitive price for the Far East market.

Thanks to Zept's robust equipment manufacturing capabilities in China and its ability to provide prompt, local support during installation and commissioning, Ecospray strengthens its foothold in the Asian market while ensuring the highest standards for its EGCSs.

Ecospray's product portfolio includes a wide range of scrubber

solutions tailored to various needs, from open loop and hybrid systems to inline and u-type configurations. These technologies are available in multiple sizes, ranging from 1,800-5,000mm in diameter, and are designed for engine power ratings between 5 and 80 MW.

POSITIVE OUTCOMES IN THE PARTNERSHIP

The agreement with Zept has enabled Ecospray to continue its longstanding collaboration with one of the leading dry bulk shipping companies: having already equipped the majority of the fleet with its EGCS and undertaken multiple joint R&D initiatives, Ecospray will deliver to the Greek-based shipowner five systems to be installed on new vessels under construction at a Chinese shipyard.

These vessels will be fitted with open loop EGCSs for both main engines and auxiliary systems.

The first part of this order has been completed with the successful conclusion of the Factory Acceptance Test (FAT) for the first two DeSOx towers at Zept. The tests reported results in line with Ecospray's quality management standards.

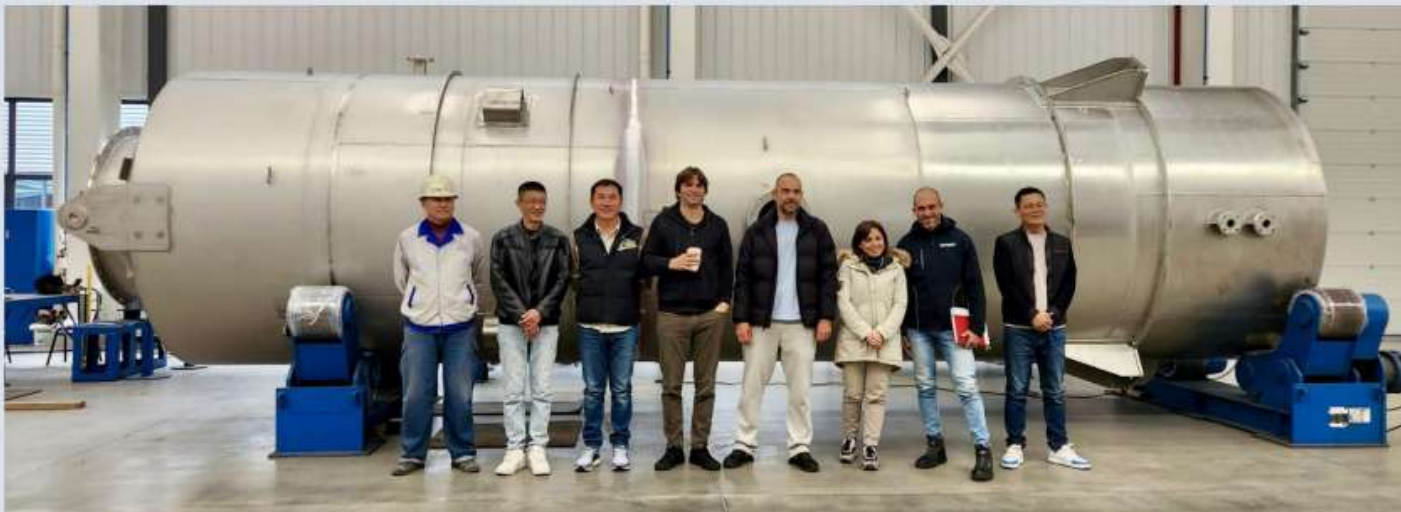
The other EGCSs are expected to be ready between September 2025 and January 2026.

Moreover, Ecospray's business development activities in the region are progressing. In parallel, within the framework of its collaboration with Zept, another project has taken shape and has been completed – with a different Greek shipowner – to equip a liquefied petroleum carrier with an EGCS.



Factory Acceptance Test of the first DeSOx tower





EGCS: A FOUNDATION FOR DECARBONIZATION

Equipping a vessel with an EGCS is a proactive step toward decarbonization and a strategic move in preparing for the next generation of maritime sustainability solutions. While scrubber technology is currently essential for reducing emissions, it also plays a crucial role in enabling future advancements such as onboard carbon capture.

The presence of the EGCS as pre-treatment of the exhaust gas reduces the pollutants (for example sulphur oxides and particulate matter) and part of the uncombusted and hydrocarbons, so as not to affect the performance and lifetime of the carbon capture technology installed downstream.

Furthermore, a key advantage of scrubbers is their ability to cool exhaust gases – a necessary step for carbon capture, which requires temperatures below 50°C. This integration eliminates the need for additional cooling stages, simplifying the process.

ONBOARD CARBON CAPTURE AIDS SUSTAINABILITY

Onboard carbon capture presents the biggest opportunity for reshaping the shipping industry.

To be ready for this sustainable transition, Ecospray has already designed, developed and tested two carbon capture technologies – based on chemical absorption with amines and calcium hydroxide – specifically for the maritime sector.

At the same time, the company is continuing to invest in developing molten carbonate fuel cell technology. This initiative is at the core of CapLab, the joint research laboratory established by Ecospray and the University of Genoa.

Given the paramount importance of decarbonization, the company is developing multiple solutions in order to be able to adapt them to different operational contexts. Factors such as ship size, type, route and onboard space significantly influence the selection of the most suitable technology.

Ecospray is ready to provide technologies to the market, but the widespread adoption of onboard carbon capture solutions depends on the acceleration of regulatory framework. The viability of investments in this technology, essential for the ecological transition, will ultimately be determined by the establishment of clear and consistent international regulations.

OTHER WAYS TO FACE THE SUSTAINABLE TRANSITION

To support the sustainable transition, it is essential to develop a diverse range of technologies. For this reason, Ecospray continues to invest in R&D across multiple areas. In particular, there are two technologies that the company already offers and which are crucial for air pollution control: the DeNOx systems use selective catalytic reduction (SCR) technology to remove nitrogen oxides from diesel engine exhaust gases.

Moreover, the methane slip reduction system represents another key area of action for Ecospray. This solution uses catalytic oxidation technology to remove methane slip from dual fuel engines. It is designed to reduce emission levels up to 95%, using oxidation catalyst substrates with platinum group metal to oxidise methane.

MORE ABOUT ECOSPRAY

From research to development, Ecospray specialises in the creation of integrated solutions for the sustainable conversion of marine and land-based industries, as well as for the reduction of dependence on fossil fuels. Founded in 2005, Ecospray, market leader in EGCS for marine diesel engines, has been part of the Carnival Group since 2013.

The company operates worldwide, providing a wide range of technologies, including gas cleaning and exhaust gas treatment (DeSOx, DeNOx, methane slip reduction), carbon capture technologies, low-carbon fuel production (CH₄ liquefaction, eNG liquefaction) and waste-to-energy solutions (CO₂ liquefaction, flare gas recovery, liquefied natural gas and natural gas liquid separation).

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