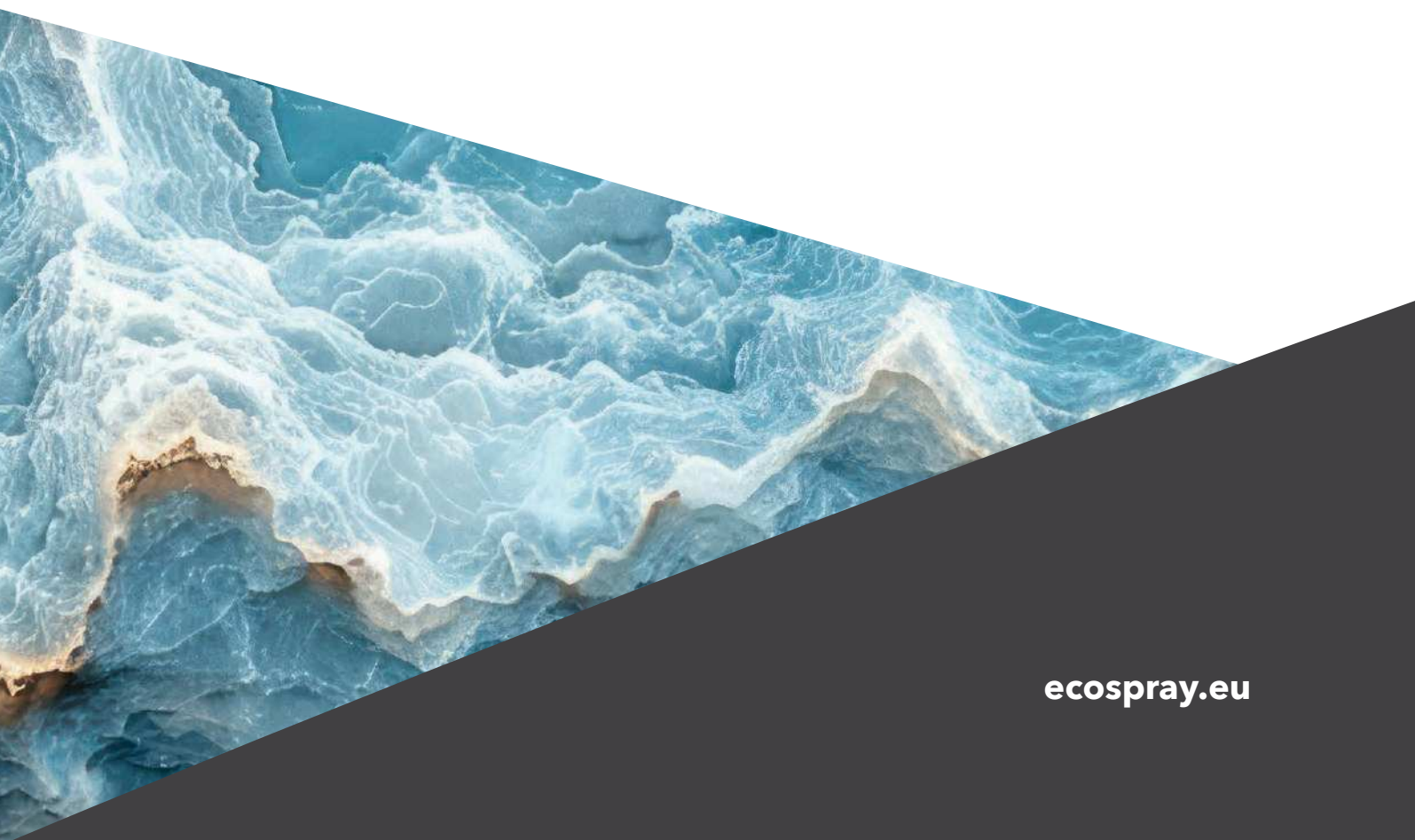
ECOSPRAY®
technologies for the planet

Make clean energy a reality

for a zero-emission Planet



ecospray.eu

Who we are: key facts

Ecospray started in 2005 as an engineering company. For almost 20 years, we have made maritime and industrial operations more **sustainable, through the cleaning and treatment of polluting emissions.**
With offices in Italy, Miami and a dedicated warehouse in Singapore, today Ecospray offers a wide range of technological solutions driven by the objective of creating clean energy.
This results in **zero-emissions for the planet**, as well as for the maritime and land-based industries.

a global company that is part of **Carnival Corporation**

market leader in **EGCS for Marine engines**

800+ systems installed worldwide

5% R&D investment to turnover

2 labs for in-house validation of test protocols, a **3rd lab** for fuel cell tests

Milestones

2005
Ecospray Technologies was founded

2006
First Gas Cooling systems for electric furnaces (IT) and DeNox SNCR systems for cement plants

2009
First DeNOx SCR system for diesel engines

2010
First high temperature filtration system with ceramic filter components + DeNOx SCR

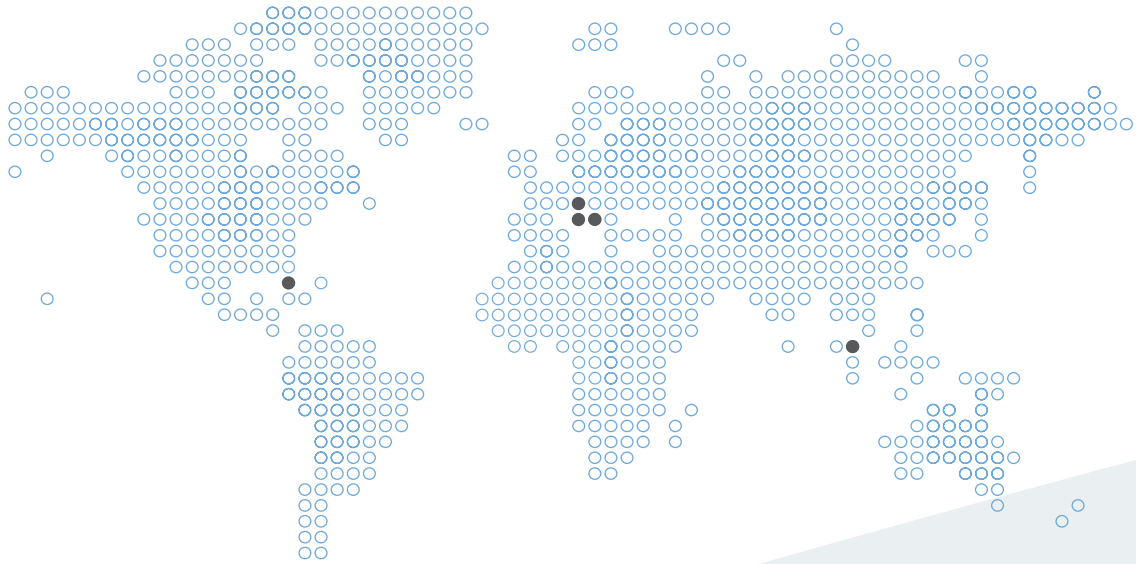
2012
Key partnership with Carnival Corporation + first full-scale marine EGCS installation on a cruise ship (Queen Victoria)

2014
First fogging system installation at the GDF Group Power Plant

2015
Launch of the Biogas upgrading system development

2017
First biogas upgrading system installed for sewage sludge, Ecospray becomes part of the Carnival Group

The Ecospray world: all our businesses



CapLab ELECTROCHEMICAL CELLS

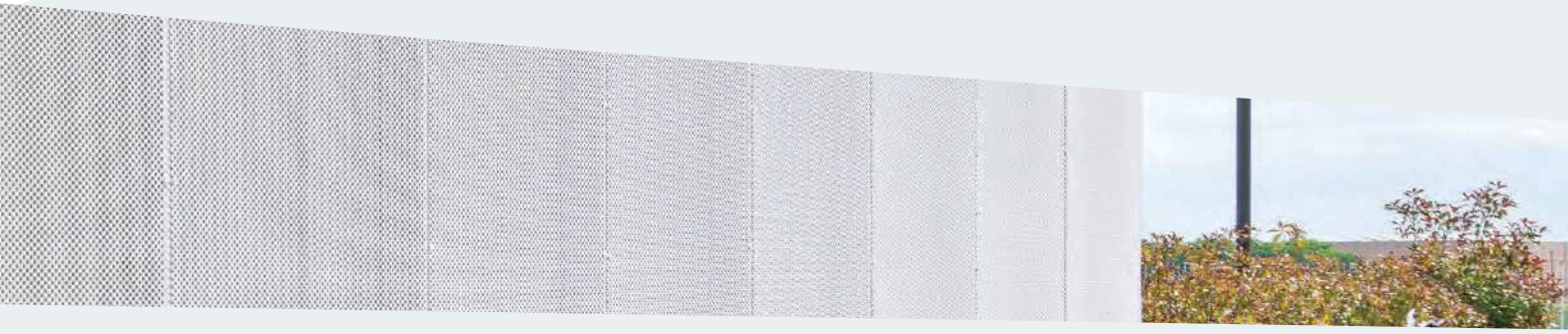
Decarbonization and carbon capture

ECOSPRAY technologies for the planet

Carbon capture, green power, clean fuel and air pollution control

cem catemission

Catalytic solutions and advanced equipment manufacturing



Development of micro-liquefaction technologies, first carbon capture technologies studies

2019

Ecospray rebranding + more than 600 EGCSs certified on passenger and commercial vessels

2021

First bio-LNG plant running in Germany

2022

CapLab

New contract to provide CO_2 liquefaction from CO_2 captured from the sea + new agreement to join the Chinese market with EGCSs

2024

2019

More than 300 EGC systems installed on cruise ships, commercial vessels and ferries

2020

First biogas upgrading and biomethane liquefaction plant for bio-LNG production from landfill (Novi Ligure)

ECOSPRAY

2022

New Ecospray office in Miami, new orders for CH_4 and CO_2 liquefaction in Italy and Germany + launch of Carbon Capture technologies

2023

Fuel cells testing lab operational, agreement to produce micro-liquefaction plants in US

Markets and applications

Marine

Integrated solutions for sustainable fleets: we serve **the cruise, merchant, ferry and yacht markets**, treating air and water emissions so this meet and exceed compliance standards for the entire industry. Ecospray has developed a range of **customized technologies** to help ship owners find the right solution **to achieve decarbonization**, in line with the type of vessel, application, ship size or operating profile.

IMO decarbonization targets are our drive to define development pathway with these carbon capture technologies:

- Carbon capture with amine
- Carbon capture with calcium hydroxide
- Carbon capture with Molten Carbonate Fuel Cells (MCFC)

With reducing emissions in mind, Ecospray has developed one of the largest portfolios of EGCSs in the industry, with hundreds of thousands of hours of operation. Our installed base represents one of the company's most valuable assets. Our advanced air quality systems are time-tested and offer proven performance for any kind of vessel, both **for retrofitting and new building projects**.
In addition, investing in EGCS solutions remains crucial as **a first step to meeting the great challenge of 2050**: scrubbers are a prerequisite and a fundamental starting point for ships that want to embrace new technologies, such as onboard carbon capture.

Our marine solutions:

- Open Loop and Hybrid EGCS (scrubber) for SOx abatement
- Advanced wash water filtration for soot and pollutant abatement in open loop design EGCSs
- WESP (Wet Electrostatic Precipitator) for black smoke, plume and PM abatement
- SCR systems for NOx abatement
- Methane slip reduction for LNG-fueled engines

Renewables

High-performance technologies to produce **sustainable fuels for automotive and ship transport**, via a virtuous cycle based on the circular economy model.
We actively support decarbonization thanks to our on-site production and supply of bio-LNG and liquid CO_2.
From the biogas flange to the distributor, our modular systems allow for the profitable conversion of agricultural biogas plants or the use of waste (from landfills, OFMSW) to produce bio-LNG.

Our renewable solutions:

- Pre-treatment to remove H_2S, VOC and other contaminants prior to conversion into biomethane
- Biogas upgrading removes CO_2 without the use of chemicals and produces biomethane with a high CH_4 content (>97%)
- Biomethane liquefaction solutions for power generation and sustainable fuels
- Liquefaction of CO_2 into an industrial/food grade-quality from biogas upgrading process systems
- Lean Gas To Power System to enhance the value of discarded low-concentration methane gas to produce heat & power

Industry

Solutions to contribute to the **reduction of the environmental footprint of traditional oil & gas sources**, avoiding the flaring and turning waste gases and unexploited stranded gas wells into ready-to-use energy.
The natural gas liquefaction solution allows on-site production from pipeline, avoiding the transport of LNG from large storage terminals, significantly reducing logistic costs, unforeseen events and further emissions associated with road transport.

Our industry solutions:

- Flare recovery gas separation & liquefaction (NGL & LNG) from APG (Associated Petroleum Gas) and wells
- Pipeline natural gas liquefaction for on-site production of LNG
- Liquefaction of CO_2 into an industrial/food grade-quality from any carbon capture process

Our activities

We design and manufacture a wide range of systems based on **proprietary environmental technologies:**

- Exhaust gas pollution control (desulfurization, denitrification and de-dusting)
- Renewable fuels (biogas upgrading and natural gas/biomethane micro-liquefaction to LNG and bio-LNG)
- Green power generation (carbon capture, micro-generation systems based on micro-turbines and Molten Carbonate Fuel Cells)

We specialized in developing customized solutions to meet the specific needs of our customers and complete **modular installations**. These span from basic and detailed engineering to procurement, building and commissioning activities, as well as ongoing maintenance programs which ensure that your system performs according to the original design throughout its lifetime.

Research and Development

We seek technological solutions and develop systems to meet the needs of our customers in the air & gas cleaning, biofuels and power generation sectors. In our research division, we develop solutions dedicated to renewable energies and environmental protection. Our innovative proprietary technologies are developed in-house and within a network of universities to provide the best solutions for each field of application.
In our laboratories, we perform in-house validation of test protocols using state-of-the-art instrumentation and analyzers. In some cases, after successful lab testing, we design and fabricate pilot industrial systems in order to test the technology in real conditions. This ensures our systems perform appropriately under any given conditions.

Engineering

We devise R&D technological solutions with a team of engineers, research chemists and process engineers. Together with our customers, we design innovative solutions to comply with existing emissions standards, increase system efficiency and optimize costs. Our systems and products rely on advanced hardware and software tools to simultaneously achieve full customization and cost competitiveness.

Production

We produce all key components and smart parts within our own facilities to guarantee the highest quality, fastest time-to-market and production scalability.
Furthermore, we rely on a consolidated network of production partners and an advanced quality control system.

Installation supervision and commissioning

Thanks to the know-how acquired through the design and construction of more than 800 plants, we are able to assist customers in the installation of our systems. We carry out commissioning activities with skilled qualified technicians and support customers in obtaining the necessary certifications.

After-sales support

From technical support to real-time assistance and 24-hour maintenance services, we can remotely control and diagnose system operating parameters, in addition to providing specialized on-site support worldwide.
Constant monitoring and prompt availability of spare parts allow us to perform maintenance within the agreed time limits, thereby avoiding service disruption and additional costs.

Data analysis and IoT

We use the latest digital tools to provide fully compliant, best-in-class performance and cost optimization through our systems. The data is analyzed to monitor performance, efficiency, maintenance needs and compliance, allowing our customers to accelerate their return on investment and to provide predictive maintenance. Furthermore, IoT technology minimizes the value lost from non-compliance fines, downtime and fuel switching costs. This is achieved through the use of advanced analytics and better monitoring, while reducing operating costs to achieve compliance.

Training and management

We offer advanced training services to prepare operators for the management all our solutions and make the investment profitable. Training is a key part of increasing reliability and usage rates and optimizing system performance.
The Ecospray Training Center - ETC has a wide range of courses in both the maritime and industrial sectors, available globally, both in-person and online and tailored to meet all clients' specific needs.

ETC ECOSPRAY TRAINING CENTER

The **Ecospray Training Centre (ETC)** hosts the new **Hands-On Course**, which allows to discover our real system components, in a completely renewed training center. The Hands-on Course is focused on providing practical, immersive experiences using actual real equipment sections, ensuring the trainees to gain hands-on maintenance expertise.

HEADQUARTERS
Via Circonvallazione, 14/14A
15050 Alzano Scrivia (AL)
Italy

REGISTERED OFFICE
Via Ricotti, 5
27058 Voghera (PV)
Italy

T +39 0131 854611
F +39 0131 854617
E info@ecospray.eu
W ecospray.eu

Download all our documents and product cards

Contact our experts:

Marine marine@ecospray.eu
Renewables renewables@ecospray.eu
Industry industry@ecospray.eu
Service helpdesk@ecospray.eu
Training training@ecospray.eu

Member of CISQ Federation
RINA
IQNet
CERTIFIED MANAGEMENT SYSTEM
ISO 9001 - ISO 14001