



## **Bowman Power collaborates to create innovative engine efficiency solution for the marine sector**

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A consortium, led by [Bowman Power Group Ltd](#) (Bowman), has successfully created a new, marine-capable system to increase engine efficiency and reduce emissions.

Just months after the International Maritime Organisation (IMO), reached an agreement to cut carbon emissions from the global shipping industry by at least half by 2050, this technology is ideally timed with the needs of the market.

The project was part-funded by Innovate UK, the UK's innovation agency, and a leading research and innovation hub. Key engine original equipment manufacturer (OEM), certification and academic partners - Rolls-Royce Power Systems (RRPS), Lloyds Register and University College London (UCL) – provided guidance and support. In total the project cost £1.5 million.

Bowman put forward their world class [electric turbo compounding \(ETC\) technology](#) as the basis for development, whilst RRPS provided key information and simulation results for their MTU Series 4000 M93 engine, which is commonly used in the marine sector.

Bowman worked with the Marine Research Group at UCL to determine the feasibility of ETC technology across a range of marine fleet sectors. Specifically, UCL developed a system modelling approach to explore the benefits, performance, limits, secondary impacts and expected results, all of which provided the necessary justification for the project to continue.

Following completion of the modelling, Bowman moved forward with prototyping and testing. They built seven different turbo generator and power electronics prototypes and tested them in different applications including in a specialist test facility and within a number of land-based applications. This enabled them to simulate real operating conditions.

To ensure the product met specific criteria for the marine market, Bowman worked with Lloyds Register to create mechanical and electrical marine compliance response documentation.

As a result of this work, Bowman was able to deliver a road map, validated with testing, to produce a marine-capable ETC system, based on their flagship ETC 1000 product. They demonstrated the potential to achieve considerable fuel savings of up to 7.8% and a reduction in CO<sub>2</sub> emissions for a number of ships currently in operation, at sea and in port.

Paul Dowman-Tucker, CEO of Bowman, said “In the past 12 months we have explored and successfully entered a number of new markets, including active discussions with two large marine engine OEMs and a major ferry operator. The support of Innovate UK, and our partners, went a long way towards making this happen. We are very grateful to all the parties involved for their help with this achievement.”

A detailed case study with further detail on the project can be found on the [Bowman website](#).

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## ABOUT BOWMAN POWER GROUP

Bowman is a provider of engine efficiency solutions including the design, development, installation and ongoing maintenance of high speed electrical machines. They help customers to generate additional power, reduce emissions and reduce fuel consumption.

Their award-winning Electric Turbo Compounding (ETC) technology has been deployed worldwide, generated in excess of 620GWh of free energy and saved over 300,000 tonnes of CO<sub>2</sub>. The majority of major engine and genset original equipment manufacturers (OEMs), large independent power producers and a global leader in the rental sector have all used Bowman's technology to improve genset efficiency.

Bowman is supported by a number of leading investment companies, including [Ombu Group](#), [Fjord Capital](#) and [Octopus Ventures](#). The company is based in Southampton, UK, and employs approximately 70 staff.

## SUPPORTING PARTIES

**Innovate UK** drives productivity and economic growth by supporting businesses to develop and realise the potential of new ideas. They fund business and research collaborations to accelerate innovation and drive business investment into R&D. Their support is available to businesses across all economic sectors, value chains and UK regions.

**Lloyds Register** is a leading international provider of classification, compliance and consultancy services to the marine and offshore industries, helping their clients design, construct and operate assets to the highest levels of safety and performance.

Under the MTU brand, **Rolls-Royce Power Systems** develop and produce high-speed engines and propulsion systems for ships and heavy land, rail and defence vehicles, as well as drive systems for use in the oil and gas industry and in power generation.

**University College London** is London's leading multidisciplinary university, with more than 13,000 staff and 38,000 students from 150 different countries. They combine their strength across all areas of research to tackle the most pressing challenges of the 21st century.