A green revolution begins at Portsmouth's port as a £19.8m grant is secured

The SEA CHANGE project will design, build and operate a 'shore power' system across the three busiest berths at Portsmouth International Port, allowing ships to 'plug-in' and turn off their engines. This has been enabled following a £19.8m award from the Zero Emissions Vessels and Infrastructure competition (ZEVI), funded by UK Government and delivered in partnership with Innovate UK.

The port will embark on the SEA CHANGE project with Brittany Ferries, alongside the University of Portsmouth, MSE International, B4T, IOTICS and Swanbarton. This will allow visiting ferry or cruise ships to turn off their engines when in the port, as they will be able to 'plug-in' and use green electricity to run their onboard systems.

SEA CHANGE has the potential to revolutionise the UK's maritime sector, and further establishes Portsmouth International Port's reputation as a living laboratory of green technology with industry-leading sustainability credentials. This project realises the full potential of two new LNG-electric hybrid ships from Brittany Ferries, which will begin sailing from Portsmouth starting in spring 2025 and will be shore-power ready.

Providing shore power will reduce harmful emissions and improve air quality around the port. It is estimated that the system will save over 20,000 tonnes of CO_2e per annum from 2027. This is the equivalent to the annual carbon footprint of around 2,500 UK households (source) or making 11,111 round trips by plane from London to New York (source).

This ambitious project reaffirms Portsmouth International Port's commitment to reduce the impact of operations on neighbouring communities and assist with the wider city's ambition to reach net carbon neutral by 2030.

Brittany Ferries is introducing two new LNG-electric hybrid ferries from 2025, which run on a combination of cleaner liquefied natural gas (LNG) and battery power. With shore power available at the port, they will be able to charge their batteries and run on battery power when manoeuvring through Portsmouth harbour, improving air quality and supporting the industry-wide shift to zero-emission shipping.

A consortium of academics, marine specialists and some of the UK's most exciting technology SMEs have been brought together alongside Portsmouth International Port and Brittany Ferries to deliver the project.

The University of Portsmouth brings academic expertise in data science, smart power grids, innovation, and environmental impact analysis. They will also align skills development to meet regional need. MSE International will use their experience to stimulate investment across private and public sectors and develop commercialisation strategies for the project.

B4T will produce new smart sensors for the project, IOTICS will create a 'digital twin ecosystem' which will allow all the project partners to select and share data securely, and Swanbarton will supply the smart control software for energy storage. All these new technologies will support SEA CHANGE and compliment the shore power system, making this an attractive and scalable solution which can be used by ports in the UK and abroad.

SEA CHANGE has great potential, and project partners plan to share learnings and collaborate with ferry ports across the UK to encourage further emissions reduction. This will help the industry reach net-zero

greenhouse gas emissions by or around 2050, a target declared by the International Maritime Organisation.

Alongside this, the project will help develop the necessary skills for green shipping and infrastructure, design, manufacturing and maintenance capability.

Working alongside the Solent's industry clusters, it will support education initiatives and help grow skills across the Solent, safeguard existing jobs through upskilling and create new high-skill opportunities, driving growth and investment across the region.

Councillor Gerald Vernon-Jackson, Cabinet Member with responsibility for the port at Portsmouth City Council said:

"Improving air quality is one of the most pressing issues facing Portsmouth today. Across the council we're undertaking a huge range of projects to combat harmful emissions, which includes already approving a massive upgrade of the electricity supply to the port so this project can happen.

"It'll also bring new high-skilled jobs and investment to the city, so I'm delighted we can now deliver this for the people of Portsmouth."

Councillor Kimberly Barrett, Cabinet Member for Climate Change and Greening the City at Portsmouth City Council added:

"I'm excited that the port can now forge ahead with this game-changing initiative that will slash carbon emissions and bring real benefits to local communities in Portsmouth. This project reaffirms the city's commitment to reach net carbon neutral by 2030".

Stephen Watkyns, technical director at Portsmouth International Port said:

"Once delivered, this revolutionary multi-user, multi-berth shore power facility will be a UK first. It means we'll be able to provide shore power for ships on three of our berths, including providing power for the hybrid Brittany Ferries ships coming in 2025.

"I'd like to thank the team at the port and our partners in the SEA CHANGE consortium for all their hard work getting this bid approved. This project is another huge step forward for our ambitions to reach net carbon neutral by 2030 and eliminate emissions by 2050."

Christophe Mathieu, CEO of Brittany Ferries said:

"This is fantastic news as it fully unlocks the potential of our two new hybrid vessels. Shore-side power in Portsmouth means we can be good neighbours to those who live and work around the city as soon as these vessels arrive in 2025. We are delighted that our forward-thinking partners have pushed so hard to make this happen and are proud to contribute to wider emission-reduction goals."

Dr David Hutchinson, Associate Professor in Environmental Innovation and Innovation and Impact Development Manager for the Faculty of Technology at the University of Portsmouth, said:

"We are very excited and proud to be part of this project to develop innovative and sustainable power systems, to bring about significant reduction in carbon emissions and improvement in air quality in and around Portsmouth."

"SEA CHANGE underscores the critical importance of the university and city joining forces to combat

climate change. This collaboration not only strengthens our resolve to address the pressing challenges of our era but also showcases the profound impact that unity and innovation can have on our shared commitment to a sustainable future. Together, we're charting a course toward a cleaner, more resilient world, where the University of Portsmouth and our port-city stand as exemplars of climate-conscious leadership."

Dr Jonathan Williams, CEO of MSE International said;

"Decarbonising the maritime industry is a challenge that we have to meet with urgency. MSE International is delighted to continue its collaboration with the port to assist its transition away from fossil fuels. The SEA CHANGE project will allow us to map the way ahead, with the technologies and business models that will underpin success."

Ali Nicholl, Founding Team at IOTICS said:

"A clean maritime industry requires secure, flexible digital infrastructure. Selective sharing of data across supply chains, spanning multiple sectors, will be the enabling capability. IOTICS is delighted to continue cooperating with the Port and its partners, enabling an interoperable ecosystem for the SEA CHANGE project"

Alex Barter, founder of B4T said:

"I am thrilled for the port, the Solent, and my team, as this significant project is a major step forward in advancing decarbonisation efforts and improving health outcomes. It also puts us on the map as pioneers in this field. We eagerly anticipate the development of our first-of-a-kind software and dashboard, which will ensure smooth operation, and the progress we will make with our Jellyfish sensors in generating energy data.

"Our ultimate goal is to export the valuable knowledge captured through the dashboard to other ports, making this decarbonising technology a standard practice across the industry. By doing so, we can contribute to making sustainable practices the norm."

Anthony Price OBE, Managing Director of Swanbarton Limited said:

"The electrification of shipping is vital part of achieving net zero. Our team at Swanbarton has developed a suite of tools to plan and manage power, such as our battery optimiser which is already in use at Portsmouth International Port.

"As part of the SEA CHANGE project team, we are continuing our collaboration with the port to use our systems to optimise the use of electricity, particularly from renewable sources."

SEA CHANGE is part of the Zero Emissions Vessels and Infrastructure competition (ZEVI), which was announced in February 2023, funded by UK Government and delivered in partnership with Innovate UK. As part of ZEVI, the Department for Transport allocated over £80m to 10 flagship projects supported by 52 organisations from across the UK to deliver real world demonstration R&D projects in clean maritime solutions. Projects will take place in multiple locations from the Orkney Isles to the south-west of England.

ZEVI is part of the UK Shipping Office for Reducing Emission's (UK SHORE), focused on clean maritime technologies that can be scaled rapidly to decarbonise the UK's domestic maritime sector. In March 2022, the Department announced the biggest government investment ever in our UK commercial maritime sector, allocating £206m to UK SHORE, a new division within the Department for Transport focused on decarbonising the maritime sector. UK SHORE is delivering a suite of interventions throughout 2022-2025

aimed at accelerating the design, manufacture and operation of UK-made clean maritime technologies and unlocking an industry-led transition to Net Zero.