Centre for
GREEN MARITIME
INNOVATION

November 2026



How will we achieve carbon-free shipping by 2050?

A roadmap for the Centre for Green Maritime Innovation

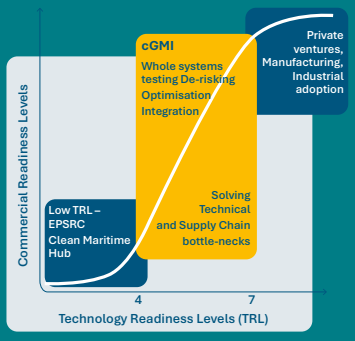
We are on a mission to decarbonise the maritime sector.

The Centre for Green Maritime Innovation (cGMI) is a **new national facility to test and de-risk** green maritime technologies. Led by the University of Southampton and shaped by industry, we have ambitious plans to grow the scale and impact of the Centre over the next decade.

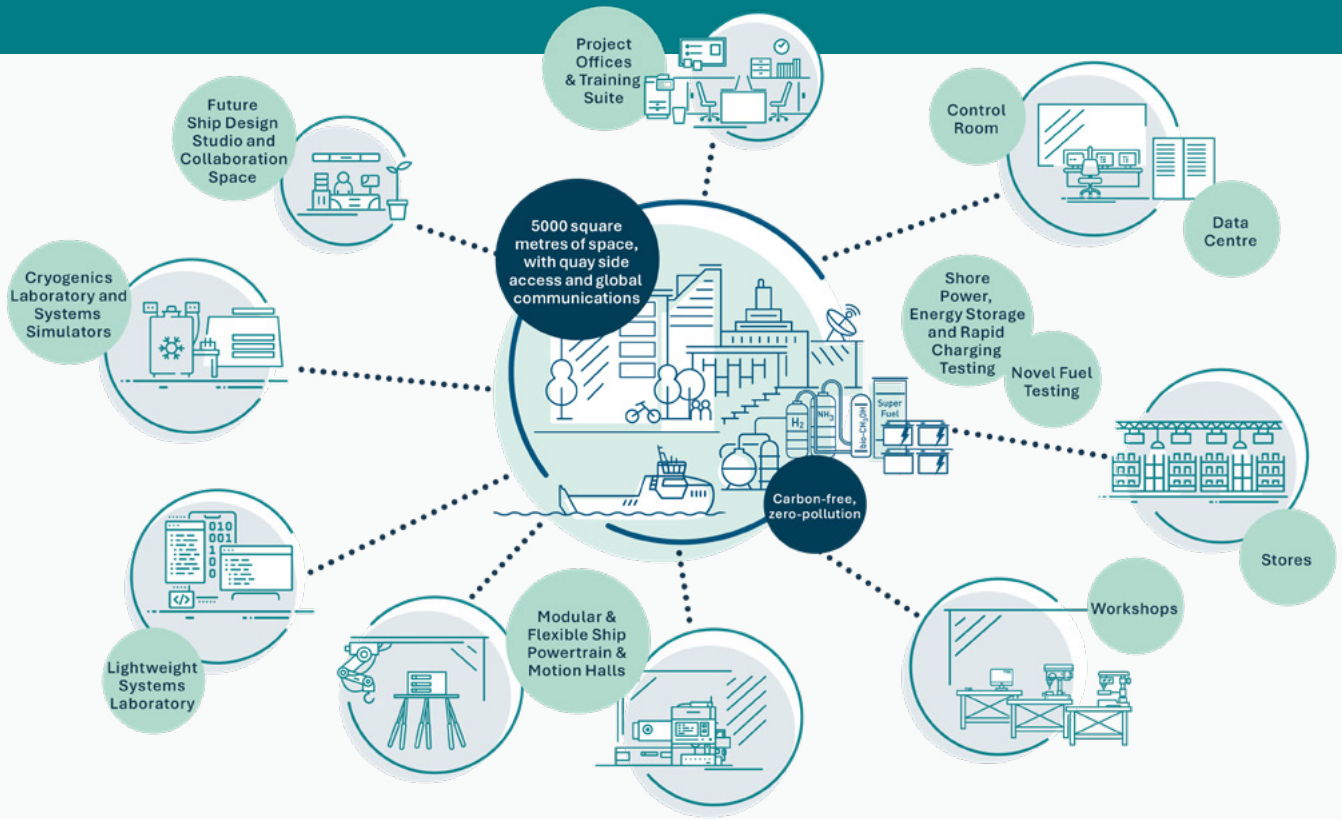
The UK Government has outlined its ambition to decarbonise the maritime sector by 2050, aligned with global efforts led by the International Maritime Organization, but **the lead-in time to adapt ports and ships is long.** The next decade is critical.

This new facility, operating at mid-Technology Readiness Levels and located in the heart of the thriving Solent maritime cluster, will **help to cohere the sector** and facilitate work with greater depth, impact and urgency.

This roadmap outlines our phased approach to growing the Centre for Green Maritime Innovation over the next decade, building on our existing **world-leading expertise.** Please get in touch if you would like to collaborate with us or support the Centre's development.



Our vision is that all maritime traffic around the UK's shores will be net zero by 2050.



Centre for Green Maritime Innovation

Phases	Phase 1 - 2026-2028	Phase 2 - 2028-2030	Phase 3 - 2030-2035	Phase 4 - 2035-2050
Summary	The launch of the Centre coheres existing University of Southampton facilities and expertise under a single cGMI banner, facilitating new mid-TRL research with greater depth. This enables a more strategic and coordinated approach to funding and helps communicate a compelling vision to external stakeholders. Increased research income in this phase is used grow the technical capabilities and impact of the Centre as it prepares for expansion. Partnerships with industry are entrenched throughout Phase 1.	New technical capabilities are added as the Centre moves onto a new University of Southampton site, enabling cGMI to start tackling small, hard-to-decarbonise vessels. This includes those that maintain the UK's offshore energy infrastructure, helping to meet the UK's green corridor commitments, and smaller ferries, such as those that connect the Isle of Wight and mainland. cGMI is recognised as the UK's national centre, collaborating globally. The Centre starts to facilitate inward investment, upskill the UK shipyard workforce, maintain domestic manufacturing and create export opportunities. The Centre is well-placed for a global political shift back towards climate action.	The Centre has a demonstrable record of success that is recognised internationally and relocates to a new external facility within the Solent maritime cluster. This enables the decarbonisation of ships that have an essential role in global trade. These are vessels that economies rely on, which are currently almost impossible to decarbonise. The work of the Centre also makes it possible to transition larger roll-on-roll-off ferries, including those that cross the channel or connect Scottish islands. This brings new manufacturing to the UK, plus growth, jobs and new skills.	The Centre's footprint and technical capabilities expand further and it is established as a global centre for maritime innovation, able to help decarbonise the largest container and cruise vessels. The International Maritime Organization uses its outputs to benchmark global regulation. Industry leaders in key maritime countries such as Singapore, Japan and South Korea come to the UK to further their work.
UK and global strategic alignments	Contributing to objectives outlined in the UK's Maritime Decarbonisation Strategy, the International Maritime Organization's Greenhouse Gas Strategy, the Clydebank Declaration to establish green shipping corridors and COP priorities. Also aligned to the UK's Carbon Capture and National Shipbuilding strategies. Demonstrable impact on UK's growth and net zero targets.			
Headline outcomes for industry	Building on existing industry relationships, pooled research outputs and shared learning among partners lead to better-informed solutions. Energy efficiency technologies can be deployed and trialled. Access to a broader pool of expertise beyond engineering accelerates innovation and adoption.	Decarbonisation at lower power levels is possible due to cGMI evaluation of fuels, and safety arrangements for these fuels are validated. Component level control system validation is also possible. Data starts to inform investment decisions and reduce long term risk. Smaller vessels and the 'hotel load' of larger vessels can be adapted to be net zero. UK workers can be upskilled to retrofit vessels. cGMI outputs help organisations meet interim decarbonisation goals and members continue to have access to pooled research outputs.	Whole system integration testing can be delivered, including digital interoperability. cGMI evaluation of fuels leads to decarbonisation at higher power levels. Data from the Centre informs bigger investment decisions and larger vessels can be adapted to be net zero. Organisations can meet major decarbonisation milestones utilising cGMI outputs.	cGMI evaluation of fuels enables decarbonisation at the highest power levels. High quality research and data informs international decision making and regulation, achieving industry consensus on global infrastructure requirements. The adoption of new technologies enables the meeting of international maritime decarbonisation targets.
Digital outcomes for industry	The Centre can facilitate component-level digital modelling and control.	The Centre's capabilities expand to include the assurance of digital systems and models, sub-system testing of energy management systems, cybersecurity of sub-systems, plus fault tolerance testing of digital systems.	Full system-wide testing of energy management systems becomes possible, plus full-system cybersecurity, including communication security.	
Safety and training outcomes for industry	Safety and training are key to the USP of the cGMI and are embedded into the Centre's work from launch, aiding decision-making.	The Centre can begin to train the UK shipyard workforce to adapt and retrofit smaller vessels, including those that weren't manufactured in the UK.	The Centre can train the UK shipyard workforce to adapt and retrofit larger vessels and start to export its knowledge and experience.	
Technical capabilities of the Centre	A single selected fuel (e.g. hydrogen or methanol) can be tested at low power levels on a limited powertrain test bed, such as a representative fuel cell-battery hybrid. Small powertrain system components (up to 1 tonne in weight) can be tested using existing motions platform. Work can take advantage of existing towing tank, wind tunnel and cryogenic testing facilities and high-performance computing.	The ability to test a second fuel is added (e.g. hydrogen and methanol) and new power train conversion units (additional fuel cells and batteries) increase the power levels that can be tested. A new high-capacity motions platform allows testing of propulsion components up to 4 tonnes in weight.	Multiple candidate fuels can be tested (e.g. ammonia, hydrogen and methanol) and further power train conversion units increase the power levels that can be tested. Small internal combustion engine and gas turbine units allow reconfigurable powertrain testing. A larger motions platform allows testing up to 16 tonnes. In combination with the 4-tonne platform this enables the testing of relative motions between components.	The addition of more power conversion units enables representative testing for the highest power levels (up to 60-80MW). The Centre continues to add fuel and other novel energy storage options as research in these areas develops.
Location	Existing University of Southampton sites	New site on University of Southampton estate	Small external facility with room to extend	Extended external facility
People	Existing University of Southampton and industry staff	10 cGMI staff	20 cGMI staff + some short-term industry secondment	30 cGMI staff + some long-term industry secondment and co-location
Funding target to move into next phase	**£1m**	**£15m**	**£60m**	**-**
Source of funding	Reseach grants and small, early investments in the growth of the Centre	Membership income, philanthropic donations and pay-as-you-go commercial offering	Public funding and/or alternative sources of finance	Revenue from International Maritime Organization and UK/EU Emissions Trading Scheme

University of Southampton

The lead-in time to transition ports and ships makes the next decade crucial in meeting important climate targets. Please get in touch to find out how you can collaborate with the Centre for Green Maritime Innovation and support its growth.

Find out more

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cGMI

Developed in collaboration with:

ABP ASSOCIATED BRITISH PORTS

BAE SYSTEMS

CARNIVAL UK

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