



BUSINESS PLAN 2024 – 2025





THE
SOLENT
CLUSTER

FOREWORD

As The Solent Cluster moves from its start-up phase this business plan sets out the next step on our ambitious journey to become a world leading low carbon hub.

Over the past year we've come to recognise the full potential of The Solent Cluster in effecting real transformational change in sustainable energy production and consumption, and the incredible opportunity this will bring to local communities, the region and the UK.

The Solent Cluster is capable of becoming an internationally significant cluster. We will use innovation to drive forward our ambitions and exploit the technical expertise and infrastructure assets we have locally to move towards low carbon fuel solutions, while making a major contribution to the UK's long term energy security.

The Solent Cluster's members' anchor projects have the potential to reduce greenhouse gas emissions in the region by 42% by 2040; bring almost £12 billion of private sector investment into the region's infrastructure and add over £4.4 billion of gross value to the economy by 2035. The area is located close to a natural saline aquifer under the English Channel which is uniquely positioned to potentially store safely, securely and permanently up to 10 million tonnes of CO₂ offshore.

Part of the journey towards this low carbon future is the development of a world-class talent base which can respond to new technologies and drive an innovative knowledge-based economy; and with The Solent Cluster's potential to sustain over 70,000 jobs, including the creation of 18,900 new skilled jobs, we're committed to working with partners in education to ensure our young people can benefit from these career opportunities.

This year's business plan is particularly exciting as we've successfully secured some national funding to support our local industry on their decarbonisation journey. This is the result of a successful bid to the Government's Local Industrial Decarbonisation Plan (LIDP) competition, run in partnership with Innovate UK (IUK), and it will be complemented by funding from the project partners to bring the project total to over £1million. Our Solent LIDP is a joint project with industry and academia focussing on access to low carbon hydrogen production, electrification and carbon capture and storage.

We are very much looking forward to working with our LIDP partners to successfully deliver this project over the coming year, and with The Solent Cluster's wider network on our ambitions. With over 140 organisations in our network spanning the public, private and education sectors, we are one of the largest and most diverse clusters in the UK, and perfectly positioned to make a real contribution, as a region, to deliver on national priorities around Net Zero and ensure the UK remains competitive and at the forefront of the emerging low carbon economy.

The coming year will see The Solent Cluster provide a platform for all its network to showcase their low carbon innovations and, by working in collaboration with partners across the south, make a real difference to our communities and the UK's long term energy resilience.

Anne-Marie Mountfield
Chair, The Solent Cluster

The Solent Cluster is an industry led body for the promotion of a lower carbon economy across the South of England and wider UK. Anchored in The Solent, the central south coast of England – the area comprising south Hampshire, Southampton, Portsmouth and the Isle of Wight – it is one of the UK's most important industrial clusters, with nationally significant infrastructure assets that make it uniquely positioned to help transition the South of England towards a lower carbon economy.

ExxonMobil's Fawley Petrochemical complex on Southampton Water is the largest of its kind in the UK. The complex is connected by pipelines to major UK transport hubs including Heathrow and Gatwick Airports and provides a potential opportunity to supply Sustainable Aviation Fuel and support decarbonisation of air travel. The region is a global trading gateway with major ports at Southampton (the UK's largest export port, and Europe's primary cruise port) and Portsmouth (with more Ro-Ro destinations to mainland Europe than any other UK port). By combining these strategic assets with a diverse industrial base (with significant clustering of advanced manufacturing) and the potential for offshore carbon storage, The Solent Cluster has the ingredients to play a significant role in transitioning the UK to a lower carbon economy and helping the Government meet its Net Zero commitments.

The Government has set targets for the UK to reduce its greenhouse gas emissions to Net Zero by 2050 and has identified six industrial clusters that present a significant opportunity to play a leading role in meeting this target. A cluster model has many benefits to support a lower carbon economy. It provides the basis for the development of a network and a vehicle through which to convene diverse actors from across industry, the public sector, academia, research, education and beyond.

To realise this incredible opportunity, we have established **The Solent Cluster**. Founded by the former **Solent Local Enterprise Partnership**, **The University of Southampton** and **ExxonMobil**, we now have a network of **around 140 organisations**.

The Solent Cluster is the only project of its kind in the South of England and is backed by organisations with the technical expertise and global track record of delivering cost effective low carbon solutions for industry. This effort could position the area at the centre of low carbon fuel production in the UK and make a major contribution to the country's Net Zero ambitions by 2050. Together we will establish the area as a hub of expertise and innovation. This hub has the potential to enable the development of new hydrogen and lower carbon energy facilities, capable of creating sustainable fuels for marine, aviation and transport. Additionally, these facilities could produce lower carbon power or fuels to heat homes, businesses and public buildings in our region and beyond.

To begin the decarbonisation of the region as quickly as possible, we need to work together to reduce CO₂ emissions from our local industries through a range of interventions including **new fuel production** and **Carbon Capture, Usage and Storage (CCUS)**. By developing our ability to produce and deliver lower carbon fuels and energy through reliable supplies of hydrogen and sustainable aviation fuel, our plans will also help UK business remain competitive within the global market, while supporting energy resilience, fuel security and affordability. By supporting local industry to create sustainable production processes, we can position the south coast region as a leading clean energy hub.

We published a **report** in November 2023, showing the potential socioeconomic impact of The Solent Cluster's work for creating new employment opportunities and adding value to the economy on our journey to Net Zero through **six potential anchor projects** that are under evaluation by their respective project leads. (see page 14 'The Anchor Projects').

Alongside our vision to decarbonise the central south coast of England, we aim to support the development of a skills pipeline that enables our young people and residents to take up these new employment opportunities in the industries of the future. Accordingly we have set a strategic priority to **support the development of a world-class talent base** and reskilling in new, low carbon industries. We commit to working closely with local schools, Further and Higher Education, as well as the Local Authorities to ensure that the linkages between education and industry are strong and meaningful and deliver the skills the sector needs to grow.



Please visit www.thesolentcluster.com/resources/ to find out more about our Socioeconomic Report

This work estimated that the area has the potential to:

- Sustain **70,000 jobs**, providing a robust employment landscape that could foster economic resilience across the region.
- Create **18,900** new jobs by 2035.
- Create investment of almost **£12 billion**, signalling a commitment to the region's infrastructure and economic growth.
- Increase gross value added to the economy by 2035 of **over £4.4bn**.
- Capture and safely, securely and permanently store up to **10 million tonnes** of CO₂ annually.



OUR VISION

Our vision is for the Solent to become a **leading centre for low carbon investment** that will **grow the regional economy, protect skilled jobs, and create new employment opportunities** in the cleaner energy technologies and industries of tomorrow.

OUR STRATEGIC PRIORITIES

- Support the delivery of the **Anchor Projects**.
- Support the Solent and wider South of England to become a **leading area for low carbon investment**.
- **Create new jobs and secure existing jobs** for the benefit of our communities.
- Support the development of a **world-class talent base** and reskilling in new, low carbon industries.
- Raise the level of **economic output**.
- Help the UK remain **competitive, energy secure,** and deliver on national energy priorities.
- Make a **major contribution** in the UK's move to Net Zero.
- Provide a platform to showcase the Solent's low carbon **innovation and collaboration**.

OUR BOARD

The Solent Cluster is a company limited by guarantee, with an industry-led Board that seeks to promote the delivery of programmes and initiatives that will establish the south as a globally leading area for low carbon investment, creating new employment opportunities and enhanced research and innovation capability in the cleaner energy technologies and industries of the future.

The Board has provision for an independent chair and deputy chair, up to five business directors from the low carbon economy, one Higher Education director, one skills director from the local Further Education colleges, one local authority director, and one executive director.

Whilst The Solent Cluster was established in 2022, it was incorporated as a company limited by guarantee in June 2023.



ANNE-MARIE MOUNTIFIELD

Chair
The Solent Cluster

Anne-Marie is the Chair of The Solent Cluster and the Chair of Maritime UK Solent. She was the Chief Executive of the Solent Local Enterprise Partnership (LEP) from 2012 to 2023. Before joining the LEP, Anne-Marie had held senior executive leadership posts for more than 20 years in further education, the Civil Service (Department of Business Innovation and Skills) and local government.

A member of the Institute of Directors (IoD), Anne-Marie won the prestigious New Chartered Director award at the IoD London and South's Director of the Year Awards in 2020.



STUART BAKER

Executive Director
The Solent Cluster

Stu is the Executive Director of The Solent Cluster – the South's only low carbon cluster, and is passionate about the Solent and its maritime and low carbon economies.



RALF RASHBROOK

Solent Cluster Venture Manager
ExxonMobil

Ralf was instrumental in establishing The Solent Cluster and sits as a Non-Executive Director of its Board. Now with over 25 years' experience gained in the energy sector around the world, Ralf began his career at Fawley in 1997. Ralf currently leads the ExxonMobil Low Carbon Solutions team working on projects in the Solent.

A Fellow of the Institution of Chemical Engineers (IChemE), Ralf is active in promoting the discipline through the Institution, including working to accredit University Courses and helping individuals with non-accredited degrees become Chartered Chemical Engineers.



PROFESSOR LINDSAY-MARIE ARMSTRONG

Academic Cluster Lead, Industrial Decarbonisation Research & Innovation Centre (IDRIC)

Deputy Director – Sustainability & Resilience Institute
University of Southampton

Lindsay-Marie Armstrong is Professor of Decarbonisation within Engineering and Physical Sciences at the University of Southampton and Deputy Director of the Sustainability and Resilience Institute. She is the Academic Cluster Lead for The Solent Cluster as part of the EPSRC-funded £20m Industrial Decarbonisation Research and Innovation Centre (IDRIC).



MARCUS HUNT

Business Development Director
SGN

Marcus is SGN's Business Development Director with over 20 years' experience in both regulated and non-regulated utility businesses both in the UK and US.

Prior to joining SGN, Marcus spent 5 years with KPMG's Infrastructure Advisory Group, advising clients on a range of commercial strategy, transaction and regulatory issues. At SGN, Marcus has responsibility for SGN's decarbonisation activities including hydrogen and biomethane.

Marcus is a board member of MUA, SGN's last mile infrastructure joint venture and FYLD, a start up in the digital SaaS market.



HELEN ODHAMS

Principal & CEO
Brockenhurst College

Helen is the Principal and CEO at Brockenhurst College. She has worked in education all her professional career and is a firm believer in the value of a quality post-16 education and the opportunities, experiences, and reward this creates for students. Helen brings a wealth of experience and knowledge to her role with expertise spanning crucial areas of quality improvement and development, curriculum strategy and planning as well as wider learning and external partnerships.

Additionally, her roles in the governance of the South Coast Institute of Technology and participation in the Waterside Steering Group underline her commitment to the development of knowledge, skills and opportunities for students, which support the future development and growth of the local and regional economy and communities.

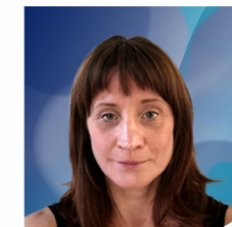


IAN COOK

Head of Hydrogen Business Development
SSE plc

Ian Cook is a global energy business leader who is currently the Head of Hydrogen Business Development for SSE plc. Ian is focused on developing new hydrogen production opportunities in his current role. Before his current role, Ian led the SSE Power Business development team working on CCS, hydrogen and LDES projects. Prior to that, Ian worked for SSE Distributed Energy, developing heat and electricity networks and EV and battery projects.

Prior to joining SSE, Ian worked for over eight years for the engineering and technology provider NOV and lived in the USA and Norway, delivering projects across the globe. Ian is a Chartered Chemical Engineer, holding an MEng from The University of Edinburgh and an MBA from Imperial College London.



CLAIRE WOODWARD

Head of Hydrogen Project Development
RWE

Claire is a Chemical Engineer with a wide breadth of experience gained over the last 25 years. Beginning her career as a Plant Engineer in the speciality gas industry with BOC Gases, her experience includes operations and engineering management of large manufacturing and chemical production facilities and the development of energy projects.

Claire's focus now is building and leading the UK Hydrogen Project Development team at RWE to develop and deliver hydrogen production facilities across the UK in line with RWE's Going Green Strategy.

THE SOLENT CLUSTER OUR MEMBERS

With over 100 organisations in our network, The Solent Cluster is a truly cross-sector collaboration of regional, national and international organisations, many with decades of proven expertise in carbon capture, storage and hydrogen technology.

No other cluster has such diverse members drawn from business and industry, academia and the public sector. Together we can deliver the key elements of decarbonisation – knowledge, production and storage, distribution, and end user markets.



THE SOLENT CLUSTER POTENTIAL THROUGH COLLABORATION

Opportunity to create the
decarbonise the south at scale.



Together we can:

- Attract low carbon investments
- Support UK energy security
- Protect existing employment and create new jobs
- Foster new technology, research and innovation
- Create a lower carbon economy
- Contribute to the UK's Net Zero targets
- Develop the lower carbon skills the sector needs
- Create a network of lower carbon opportunity

A VISION FOR THE FUTURE PRIORITY PROJECTS

To contribute towards the UK's goal of Net Zero by 2050, six potential anchor projects are under evaluation. These projects fall under three categories: **Carbon Capture and Storage, Hydrogen, and Sustainable Aviation Fuel.**

CARBON CAPTURE AND STORAGE (CCS)

CCS involves harnessing the carbon emissions from industrial processes, transporting the carbon, and then storing it underground safely, securely and permanently to prevent it being released into the atmosphere, which in turn can prevent future temperature increases. Low carbon hydrogen is best suited to lower emissions within those sectors which are not easily electrified. Two low carbon hydrogen production solutions which pass the UK Government's Low Carbon Hydrogen Standard are described below.

HYDROGEN FUEL

- **'Blue' hydrogen** produced by reforming natural gas, with CO₂ captured and stored using Carbon Capture and Storage (CCS)
- **'Green' hydrogen** produced via electrolysis, where water is split into oxygen and hydrogen, powered by renewable electricity
- H2 Connect is a new transmission pipeline proposed for transporting hydrogen from production sources to where demand is located throughout the Solent region. This will provide a critical network, enabling a diverse range of 'off-takers' with an opportunity to access hydrogen in order to decarbonise their processes and meet their energy demands.

SUSTAINABLE AVIATION FUEL (SAF)

SAF is low carbon fuel for aeroplanes produced with minimal unabated fossil fuel content. Instead it is made primarily from sustainable or waste resources and can reduce emissions from aviation.

ANCHOR PROJECTS

- The **Solent Blue hydrogen plant**, which has an estimated capacity of 1.4 Gigawatts (GW) and, if approved, could begin operations in 2030. The hydrogen could replace natural gas for industry. A secondary expansion phase, if approved, could increase the estimated capacity to 2.8 GW, and could come online in 2035.
- A potential **Sustainable Aviation Fuel (SAF) plant**, which has an estimated fuel production capacity of 200,000 tonnes (200 kt) per year, and, if approved, could start operating in 2032. A secondary expansion phase, if approved, could be completed by 2035, and would increase estimated fuel production capacity to 400 kt per year.
- **Carbon capture** at the **Marchwood Energy from Waste (EfW) Plant** owned by Veolia.
- **English Channel Offshore Storage**, which, if approved, would transport CO₂ captured in The Solent Cluster region and potentially beyond, and store it under the seabed in a saline aquifer
- **Two green hydrogen plants**, with a combined estimated capacity of 400 MW to produce hydrogen from renewable electricity.

A VISION FOR THE FUTURE DELIVERING OUR VISION

Delivering The Solent Cluster's vision for the Solent to become a leading centre for low carbon investment that will **grow the regional economy, protect skilled jobs, and create new employment opportunities** in the cleaner energy technologies and industries of tomorrow, will take a collaborative and concerted effort from all.

The table on page 16 sets out the activities that we will progress in 2024/25. We recognise that there will be a General Election in the UK during our first Business Plan cycle, and, with this in mind, we will ensure that we remain agile to respond to **new opportunities** and policy, as they arise.

A key project in 2024/25 will be the delivery of The Solent Cluster Local Industrial Decarbonisation Plan (LIDP). The Solent Cluster has been awarded **£749,882** to contribute to a total project cost of **£1,005,143**. The project will be delivered between February 2024 and February 2025. The Solent Cluster LIDP contains an **innovative and diverse** group of project partners that focus on manufacturing, rather than heavy industry. These emitters will have access to CO₂ transport and storage infrastructure and low carbon hydrogen production being developed in the Solent.

The Solent Cluster LIDP contains an innovative and diverse group of project participants including:

- **Ada Mode**
- **ExxonMobil**
- **Enoflex**
- **GeoSpecialty Chemicals**
- **Solent Partners**
- **SSE Energy Solutions**
- **StandardAero**
- **Veolia**
- **University of Southampton**

The project comprises five main work packages, as follows:

- Identifying the current emissions and energy/fuel demands of each site, to understand the evolution of emissions under the business-as-usual case.
- Conducting feasibility studies for decarbonisation, modelling decarbonisation scenarios and options and assessing the costs/benefits of each scenario under different drivers by creating digital AI twins for each decarbonisation option.
- Understanding key market, policy and regulatory opportunities and challenges to different decarbonisation technologies as well as social acceptance issues on decarbonisation of the Solent.
- Quantifying economic benefits linked to industrial decarbonisation (jobs and GVA) and understanding opportunities for investment and economic growth (e.g., trade of clean commodities, low carbon energy technologies).
- Engagement and dissemination activities and plans for further engagement.
- Work will also progress on the development of the six anchor projects by their project leads.

THE SOLENT CLUSTER ACTIVITIES 2024/2025

ACTIVITY	OUTPUT	TIMESCALE
The Solent Cluster Local Industrial Decarbonisation Plan (LIDP)	- Deliver all work packages associated with the LIDP project.	By end of February 2025
Attendance and Presenting at the 5th UK CCUS & Hydrogen Decarbonisation Summit, Leeds	- Exhibitor stand to promote The Solent Cluster. Participation in a panel session to ensure The Solent Cluster is part of the narrative and discussion for Hydrogen and CCUS in the UK.	February 2024
Attendance and Presenting at Innovation Zero 2024, Olympia London	- Exhibitor stand to promote The Solent Cluster. Includes a speaker presentation and a panel session over 2 days to ensure The Solent Cluster is part of the narrative and discussion for Hydrogen and CCUS in the UK.	April / May 2024
Attendance at Party Conferences	- Exhibitor stand to promote The Solent Cluster and an opportunity to engage directly with politicians.	Autumn 2024
Bi-monthly Member Network Meetings	- Showcasing the low carbon solutions being developed in the region.	Ongoing
Corporate Activity	- Agree and implement a sustainable funding model for the operation of The Solent Cluster and delivery of the Business Plan	April 2024
	- Publish The Solent Cluster's first Annual Report	March 2025
	- Publish The Solent Cluster's first Annual Business Plan	June 2024
	- Finalise recruitment to The Solent Cluster Board	Summer 2024
	- Establish relevant supporting Governance architecture	December 2024
- Strengthen The Solent Cluster membership	Ongoing	
Work with UK Regional Low Carbon Clusters on Shared Priorities	- Strengthened relationships with colleagues across the UK low carbon clusters and stronger influencing capability.	Ongoing
	- Shared learning on the approach to operating a cluster and the projects being progressed within clusters.	

THE SOLENT CLUSTER BUDGET FORECAST 2024/2025

ACTIVITY	Budget 2024/25 (£)
Direct Staffing and Chair Costs	55,100
Executive Support	82,500
Office Costs	1,500
Accountable Body Support	3,500
Legal support Inc. Company Secretary	2,500
Marketing & Communication Costs	25,000
LOCAL INDUSTRIAL DECARBONISATION:	
- Programme Management	63,659
- Consultancy Costs	101,400
- Final Report	1,200
- Events	6,500
- Overheads (Expenses & AB Support)	14,075
Contingencies / Reserves	10,000
Total Expenditure	366,934



The Solent Cluster aims to effect real change in sustainable energy production and consumption utilising the region's world-class industrial and academic expertise, to create exciting new opportunities in low carbon hydrogen production and carbon capture and storage.



www.thesolentcluster.com
Enquiries: info@thesolentcluster.com

