South East England

Commissioned by:

Offshore Wind Industry Council

The Crown Estate

Delivering our regional growth through

Advanced Turbine Technology

Smart Environmental Services

Next Generation Installation and O&M

Industrialised Foundations & Substructures

Enabled by

Access to future and existing Channel development zones

- South coast industrial focus on decarbonisation, e.g. Hynamics (EdF) Fawley Green H2 project, CCS & sustainable fuels
- Wider maritime and defence capabilities across SE including aerospace and naval
- Solent Freeport

Working with

LOCAL STAKEHOLDERS

- The Solent Cluster: a collaboration of private and public sector organisations focused on industrial decarbonization, hydrogen and maritime sectors in the southern region and beyond

And building on

SKILLS

- CECAMM (Centre of Excellence for Composites, Advanced Manufacturing and Marine), Isle of Wight

INNOVATION

- Blade testing facilities in IOW
- Marine engineering specialisms on south coast (Southampton, Portsmouth & Solent universities)
- Climate, energy transition and engineering disciplines within University of Sussex and London universities

INFRASTRUCTURE

- Significant port infrastructure – Portsmouth & Southampton & Outer Thames, though focused on other sectors
- O&M bases in Newhaven and Ramsgate

South East England: blade technology specialist with maritime and electrical skills linked to defence, and O&M experience around the south east coastline

Technology expertise building on two decades of offshore wind blade manufacture, maritime and electronics capabilities

The South East region provides deep expertise benefiting offshore wind. The Isle of Wight has been home to blade production for over 20 years, which has embedded strong regional capability - particularly in composites manufacture, R&D, design, and tooling - which offers a future base for R&D to support a next generation of offshore wind blades. This strong research presence means the region is identified as playing an ongoing role in support of the Industrial Growth Plan (IGP) Advanced Turbine Technology priority.

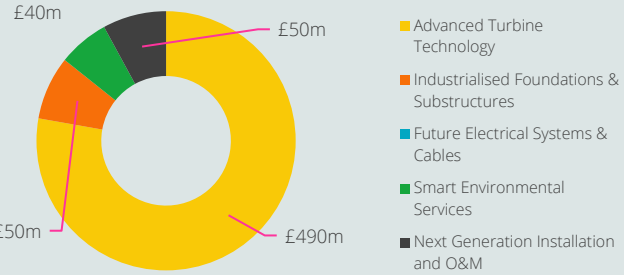
The region has significant maritime infrastructure assets, training, defence, and innovation capabilities that are globally leading and are strategic assets for the UK. This wider capability is important for offshore wind growth in Smart Environmental Services and Next Generation Installation and O&M. The region has expertise in aluminium boat building, with long-standing presence in CTV supply.

The expansion of the south coast's sole offshore wind farm – Rampion – also offers regional supply chain opportunities, building on the existing Newhaven O&M base and activities. Further east in Kent is longstanding O&M expertise supporting older wind farms in the outer Thames, which may in time become repowering opportunities. The wider European offshore wind market is accessible across the Channel.

Inland, companies in the region possess significant expertise, with Prysmian and Sonardyne both headquartered here, while greater London offers significant expertise used across the UK in offshore wind technical consultancy and finance.

Relevant Investment Need

Shared between relevant clusters



Cluster's unique proposition

Respond:

Environmental datasets

Expand:

Composites manufacture
Autonomous and low emissions vessels

Disrupt:

Blade materials and processes
Advanced materials for floating substructures
Data-driven surveys, installation and O&M

Analysis

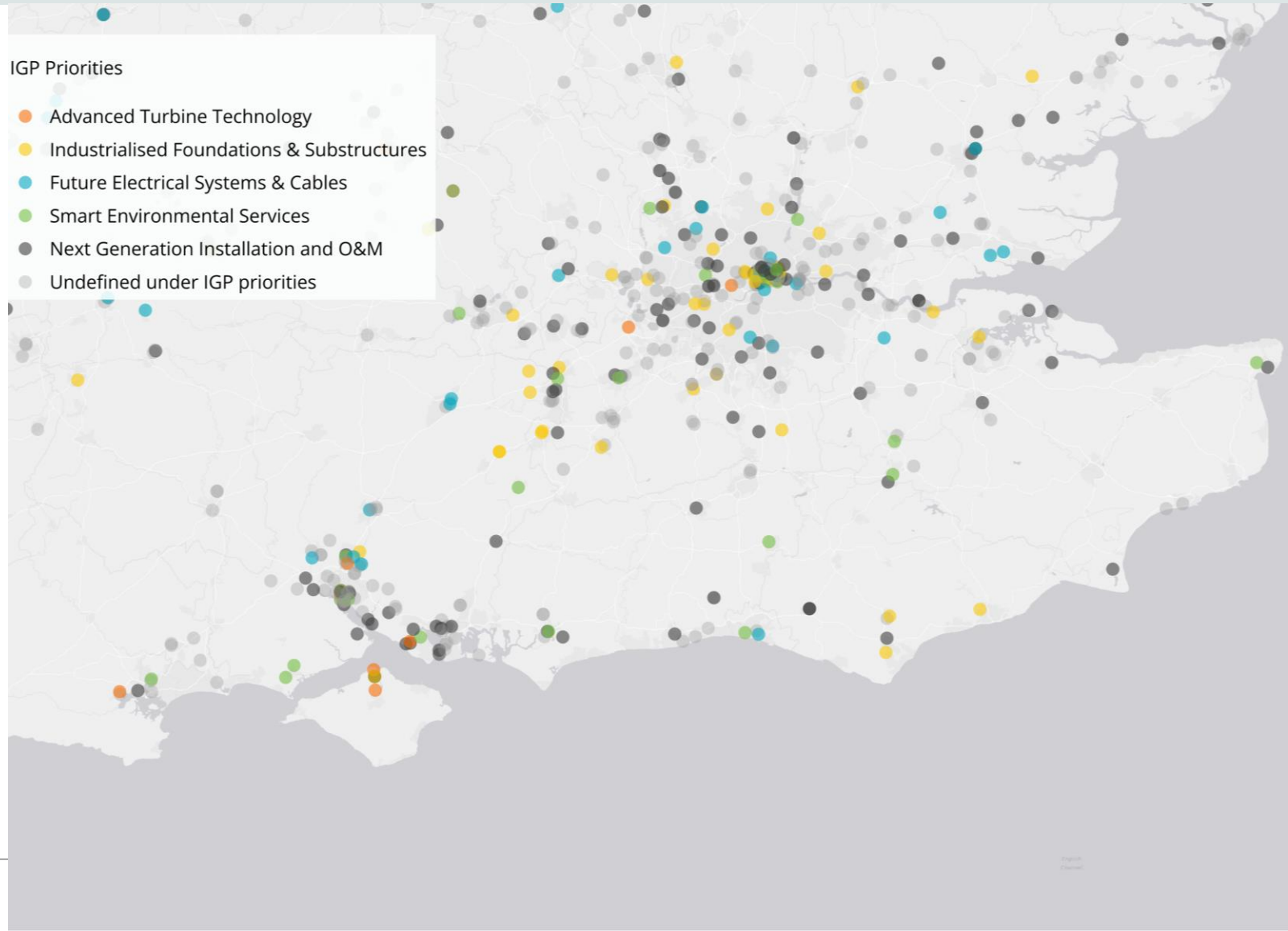
South East England - Company mapping

The UK's Industrial Growth Plan has identified a series of opportunities, grouped under five priorities, for the UK to prioritise and grow value. The Regional Growth Prospectus assessment shows a strong mapping of current capabilities in SE England. While current capability is not the sole determinant of future capability, it is a clearly a good place to start. The UK can then supplement this as needed through innovation, investment in start ups and foreign direct investment.

The map right shows capability in the SE of England, based on the Supply Chain Capability Assessment commissioned by OWIC and the OWGP. Around the Solent the longstanding presence of Vestas means high capability in Advance Turbine Technology, while maritime experience means the region also has yards supporting CTV production and repair.

Most prevalent are companies focused on providing **Smart Environmental Services** or maritime expertise for **Next Generation Installation and O&M.** , but the region is also home to companies offering products and services into each of the five priorities, and a wider group working in areas of offshore wind not defined by the IGP.

Clustering is greatest around Surrey, Hampshire, Greater London and Southampton.



South East England – IGP aligned priorities

Investment £287m-630m

Investment needed, shared between relevant clusters

Based on a national 'make or buy' analysis of critical components and services, the IGP highlights areas essential to domestic supply or where the UK has the potential to build global competitiveness.

While national in scope, the IGP emphasises the vital role of the UK's clusters in driving local supply chain growth and attracting targeted investment based on regional strengths.

This Regional Growth Prospectus helps to set out how the IGP can best build on these regional strengths. The table right shows the most relevant Investment Opportunities set out in the IGP for this region. Also set out is IGP data showing target dates for investment, the value of required UK level investment and expected UK GVA if this investment is made.

IGP priorities	Opportunity		Target date	Investment	National level GVA
Smart Environmental Services	Build extensive marine datasets	Respond	2026	£5-10m	£ 80-120m
Advanced Turbine Technology	Introduce manufacturing capability to produce advanced composite material blades and towers for fixed and floating	Expand	2033	£170-280m	£ 1.1-2.1bn
Smart Environmental Services	Claim the top position globally in providing surveying services across global serviceable markets, with more than 30% of contracts awarded to UK suppliers	Expand	2030	£10-20m	£ 0.2-0.3bn
Next Generation Installation and O&M	Use only low carbon emission vessels for all installations, operations and maintenance services in the UK	Expand	2030	£10-20m	N/A
Advanced Turbine Technology	Increase in UK blade manufacturing productivity by 20%	Disrupt	2032	£20-80m	£ 0.3-0.5bn
Advanced Turbine Technology	Develop automation process for high value component manufacturing	Disrupt	2032	£10-40m	-
Advanced Turbine Technology	Develop world leading solutions that reduce leading edge erosion by 60% in the UK	Disrupt	2032	£30-90m	-
Industrialised Foundations & Substructures	Develop UK manufacturing capability to produce advanced material for part of the floating substructure production to reduce the weight of the floating substructures by 20%	Disrupt	2035	£20-50m	£ 0.8-1.6m
Future Electrical Systems & Cables	Develop new wet and dry cable designs and materials	Disrupt	2035	-	-
Smart Environmental Services	Integrate multiple Machine Learning techniques optimising environmental surveys and minimising ecological impact in the UK	Disrupt	2030	£1-10m	-
Next Generation Installation and O&M	Integrate Machine Learning (ML) algorithms optimising operations and maintenance services	Disrupt	2030	£1-5m	-
Next Generation Installation and O&M	Commercialise next generation inspection, monitoring and installation services, implementing autonomous vehicles, robotic system and ML algorithms to process data from sensors	Disrupt	2035	£10-25m	-
Advanced Turbine Technology - materials	Grow UK supply of raw materials into offshore wind blade production	N/A	-	-	-

South East England – IGP aligned priorities

Investment £287m-630m

Investment needed, shared between relevant clusters

Advanced Turbine Technology

The long-standing presence of Vestas on the Isle of Wight means the region has significant expertise both in blade research, manufacturing and composites. The region's expertise should mean a continued role in supporting UK efforts to introduce new composite materials, increase productivity of blade production and also address challenges such as leading-edge protection.

Smart Environmental Services

The region's strong subsea capability and defence capabilities offer the offshore wind sector access to highly skilled technical expertise, which will be relevant for the increasing sector wide effort to integrate machine learning and other digital technologies into offshore wind projects.

Next Generation Installation and O&M

The region has experience of providing O&M services, primarily for wind farms off the Kent coast, as well as at Rampion (supported out of Newhaven). The recent consent for Rampion 2 offers installation and O&M opportunities for the region.

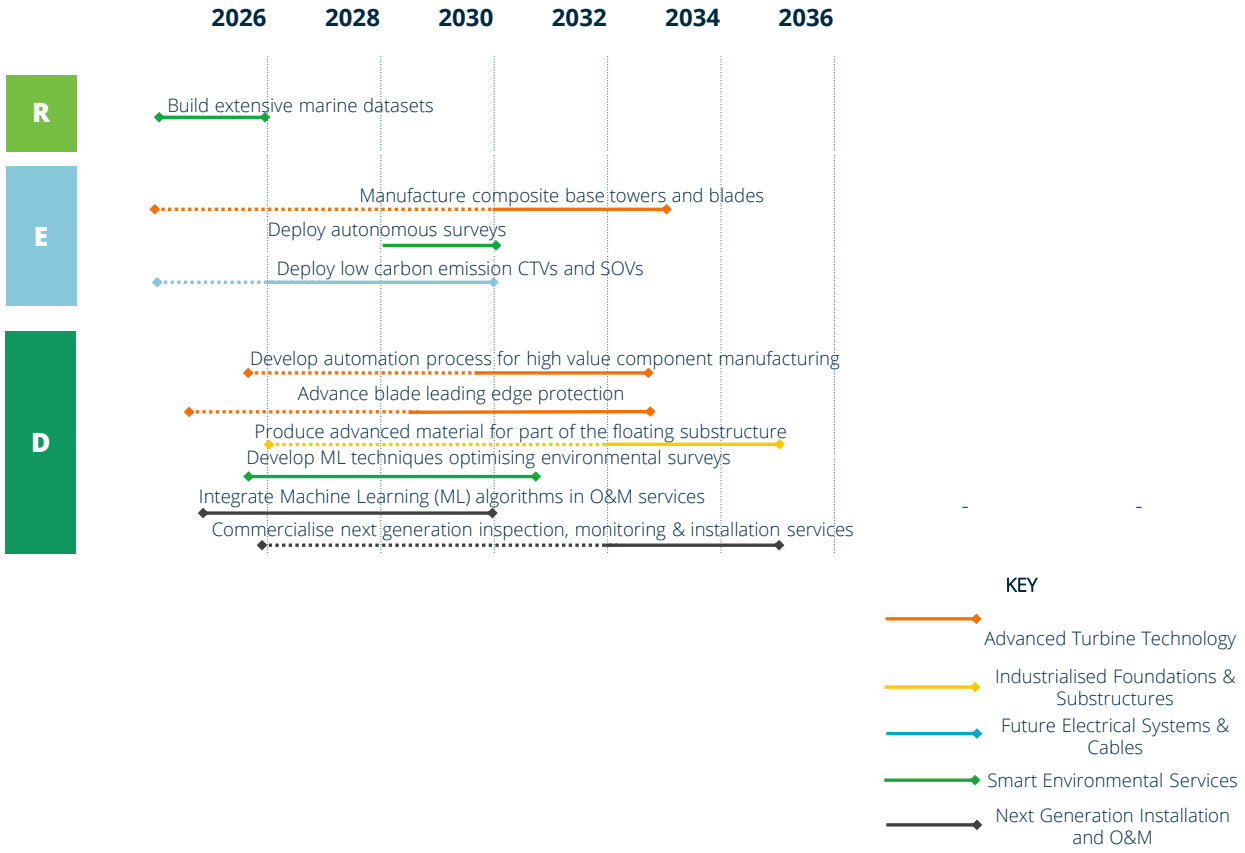
Most significantly however, the region's maritime expertise offers the offshore wind sector expertise when looking at the development of low carbon vessels, as well as the application of machine learning and other digital tools to offshore wind O&M. In addition, wider maritime expertise can support work commercialising the next generation of inspection, monitoring and installation services.

Industrialised Foundations & Substructures

A critical IGP focus is the growth of UK success in the manufacture of floating substructures, anchoring and mooring systems. SE England offers important technical skills relating to the design and optimisation of these systems, with important consultancies based in Surrey, Hampshire and Greater London. This deep design expertise will be important for UK efforts to disrupt this market and look at how to optimise and improve designs and installations, including through use of advanced materials.

(R)espond, (E)xpand and (D)isrupt Programmes

Below are shown the IGP Investment Opportunities identified as most relevant to the Solent and SE. Investment data and timelines are taken from the IGP to help focus regional and national conversations on investment priorities.



Analysis

South East England – Ports summary

Across the South East of England is expertise focused on commercial opportunities in the energy transition. The Solent Cluster membership include international energy producers working across a range of energy technologies.

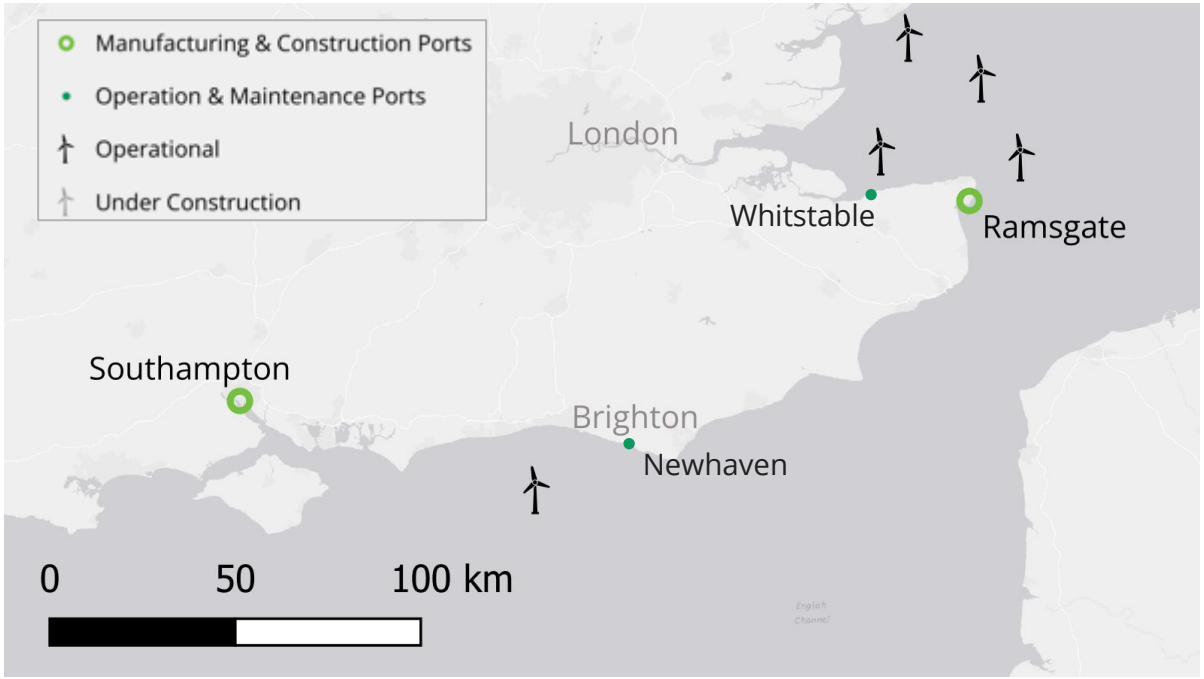
The region has different port capabilities able to support this focus on energy transition. With an extensive coastal area and deep-water ports, the region offers significant potential for offshore wind projects.

- Southampton: Renowned for its robust maritime infrastructure and expertise in energy, the port areas could support the development and maintenance of offshore wind projects.
- East Sussex: The port of Newhaven acts as O&M base for the Rampion offshore wind farm. Rampion 2 is a proposed extension to the Rampion wind farm which would quadruple the generating capacity at the site.
- Kent: The port of Ramsgate also acts as O&M base for projects such as London Array and Thanet, with Whitstable serving Kentish Flats.

Key ports in the region could be repurposed or expanded to provide vital infrastructure and services to support the offshore wind sector. Many of the region's ports are considering expansion or developing new infrastructure to meet the demands of the offshore wind industry.

For example, the Port of Southampton is weighing up options to develop facilities to support the construction and maintenance of offshore wind projects, taking advantage of its strategic location to potential sites on the south coast.

The Solent region boasts exceptional maritime capabilities, with world-leading expertise in ports, shipping, maritime defence, and shipbuilding, including expertise in small vessel construction such as CTVs.



Analysis

South East England – Ports and O&M

The Rampion offshore wind farm is operated and maintained from the Port of Newhaven. This is carried out from a purpose-built facility with offices, warehousing and a control room which was completed in 2019. With the Rampion 2 extension now consented, there are opportunities for local growth in O&M services.

The Port of Ramsgate provides an O&M base for the London Array and Thanet offshore wind farms, with berths suitable for crew transfer and service operation vessels. The port of Whitstable acts as the O&M base for Kentish Flats.

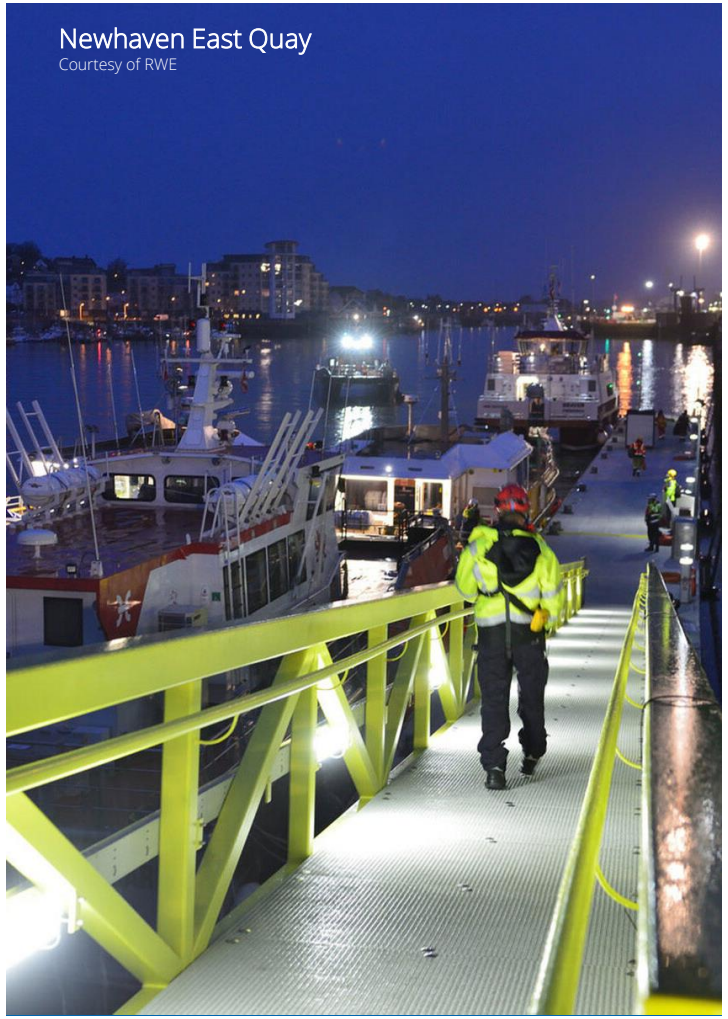
Longer term the South East could see further development of projects, with dispersed areas of opportunity along the south coast identified by The Crown Estate as having potential for future leasing.

The IGP identifies UK expertise in O&M as a strength. UK projects and the supply chain are also leading offshore wind sector work to develop new and more efficient methods for O&M, such as remote monitoring and inspection. The UK also has capability in vessel design, operation and on-deck equipment.

IGP opportunities relating to O&M concern **low carbon emission CTVs and SOVs**; **integration of machine learning into O&M services**, and; **commercialisation of next generation inspection, monitoring and installation services**.

While across the UK there is a general shift to larger projects further from shore, often in deeper waters, the UK and other markets will still require supply, servicing and repair of Crew Transfer Vessels (CTVs) that take O&M staff out to wind farms from port each day. Regional maritime expertise – including CTV supply is a regional strength – with local suppliers such as Wight Shipyards, AMC & Diverse Marine active in the offshore wind market.

The region's wider digital and maritime expertise is also valuable to the above IGP opportunities relating to O&M.



Newhaven East Quay
Courtesy of RWE

Analysis

SE England – Installation and manufacturing ports

Fabrication
Marshalling/Storage
Assembly and Integration
Installation

Southampton

- Deepwater quayside
- Sheltered water
- Expansive quayside
- Rail access within port
- Large container handling terminal

Ramsgate

- Able to accommodate RORO operations
- Known O&M operational base investigating utilisation of SOVs
- Low tidal range

Analysis

SE England – IGP Alignment
(installation & manufacturing ports)

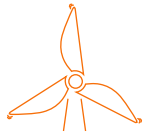
Port specifications for the South East have been used to evaluate each port's ability to support manufacturing activities, and services such as assembly and installation. These ports were selected and assessed based on track history and their installation and manufacturing characteristics, such as extensive quay lengths, large laydown areas, and high bearing capacities.

This evaluation adopts the "Expand" and "Respond" terminology set out in the 2024 Offshore Wind Industrial Growth Plan, set against priority symbols to reflect the opportunity for the key ports located in this cluster.

In this context, "Expand" indicates a port has good infrastructure, with upgrades required to fully facilitate the underlying activities. "Respond" defines a port to have strong infrastructure, with minor to minimal improvements needed.

Notes on this assessment:

- "Disrupt" has been omitted from the evaluation as there are many ports that, with sufficient investment, could support the IGP priorities over the coming decade.
- A port is classed as being able to support a particular priority if it could host a range of the varied activities within the priority (for example it could host towers or blades or drive train components, not just one type of facility).
- The IGP priority "Smart environmental services" has been omitted from this analysis as these services are less constrained by port infrastructure. For the IGP priority "Next Generation Installation, Operations and Maintenance" only installation activities have been considered, as it is assumed there is widespread capability across multiple ports to support O&M.



Advanced Turbine Technology
- Turbine design and engineering
- Tower
- Blades
- Drive train components
- Composite-based components
- Automation of manufacturing process
- Leading edge protection

Future Electrical Systems and Cables
- Array cables
- Export cables
- Dynamic inter-array cables at 132kV
- HVDC system interoperability
- Standardised systems

Industrialised Foundations & Substructures
- Floating foundation design
- Deeper water & floating foundations
- Moorings and anchors
- Automated welding
- Composites for light weight foundations
- Synthetic mooring line materials

Next Generation Installation
- Wind turbine installation
- Cables installation vessels operation

Activity	Actions	Southampton	Ramsgate
Manufacture	Expand		
	Respond		
Services	Expand		
	Respond		