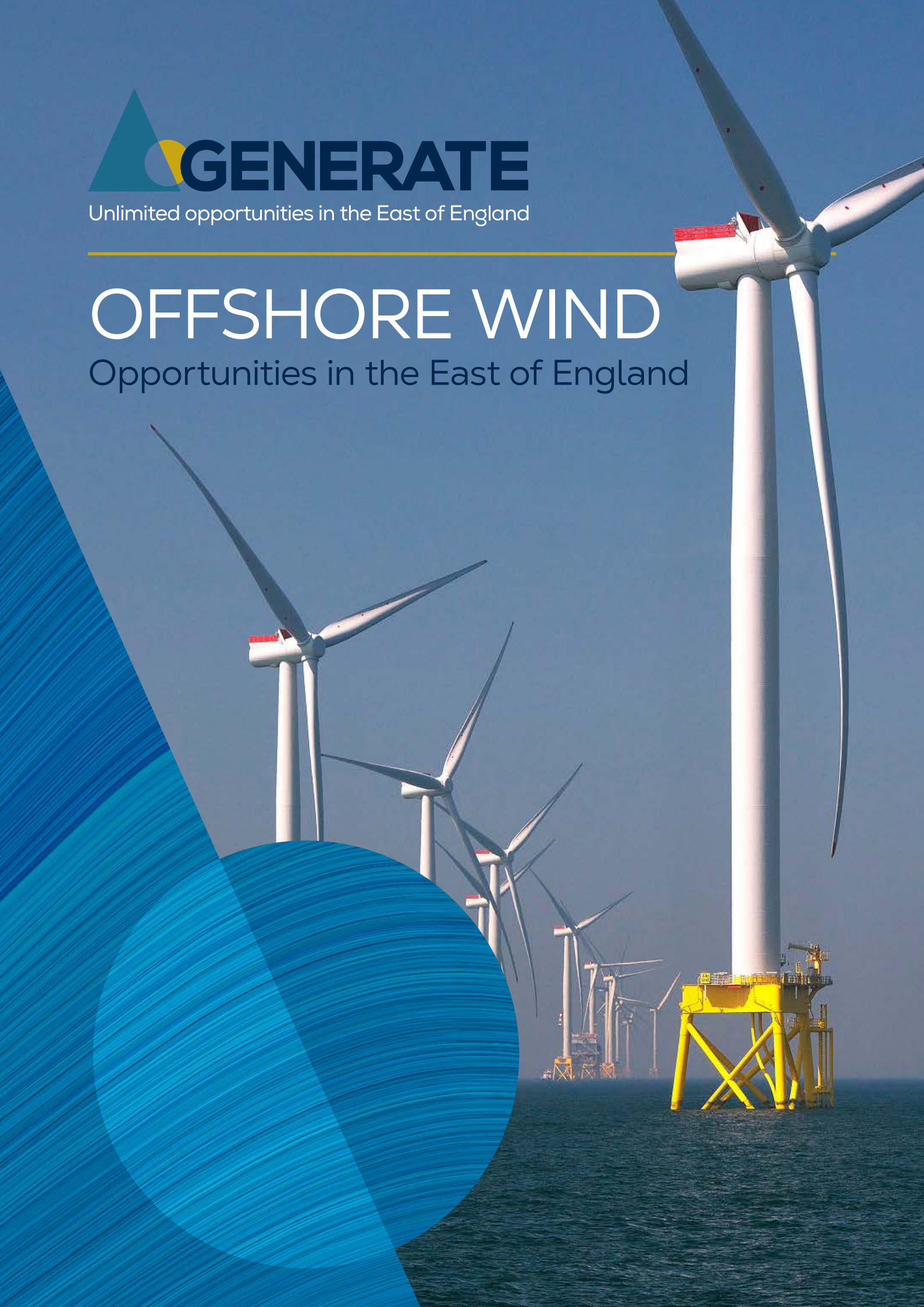




Unlimited opportunities in the East of England

# OFFSHORE WIND

Opportunities in the East of England





GENERATE connects the East of England to global energy investors by showcasing its unique energy offer, its highly skilled energy supply chain, and its unrivaled centres of innovation, research and science. GENERATE is a partnership of local authorities including the County Councils of Suffolk, Norfolk and Essex, Great Yarmouth Borough Council and East Suffolk Council. Visit [www.generate-energy.co.uk](http://www.generate-energy.co.uk)



The EastWind Offshore Cluster was established in 2021 to drive the implementation of objectives defined in the UK Offshore Wind Sector Deal for the East of England. Representing the voice of operators, developers, local government, and the supply chain across the region, East Wind raises awareness of offshore wind and the enormous opportunities it presents to the wider community both locally and nationally. Visit [www.ewoc.co.uk](http://www.ewoc.co.uk)



The East of England Energy Group (EEEGR), established in 2001 is a not-for-profit trade body representing the energy sector and its supply chain in the East of England.

With over 200 member businesses ranging from large developers spanning multiple countries through to local supply chain businesses employing just a few people, its goal is to represent the entirety of the region's energy sector across the East of England, no matter how large or how small. Visit [www.eeegr.com](http://www.eeegr.com)

**We are a committed community of energy professionals working together to drive clean growth and support businesses and communities to thrive in the East of England.**

**The East of England is one of the largest offshore wind development zones in Europe. Its favourable geography, excellent infrastructure and offshore energy and marine capabilities make it the perfect location for offshore wind businesses to thrive.**

With over 1000 turbines already installed and some of the world's largest projects consented and preparing for deployment, there's opportunities within the entire project lifecycle from construction to operations and maintenance to repowering and eventual decommissioning.

The Southern North Sea's (SNS) offshore wind farms are readily accessible from the energy focussed ports of Great Yarmouth and Lowestoft. Both have built significant expertise in the construction, operations and maintenance of offshore wind projects. Freeport status at the deep water ports of Felixstowe and Harwich is set to further strengthen the East of England's clean-energy capabilities, providing new opportunities for investment to support the UK to achieve its clean growth ambitions.

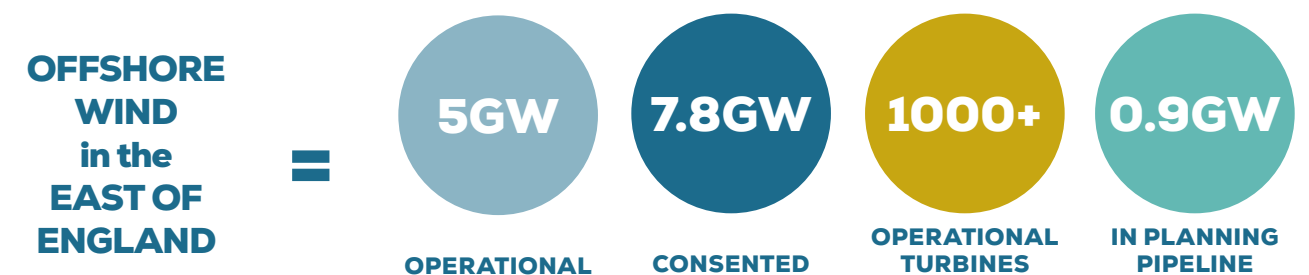
The role of GENERATE, together with its key partners the East of England Energy Group (EEEGR) and the region's offshore wind cluster group, East Wind, is to ensure these unique assets, supply chain capabilities, skills and training providers and investment opportunities are promoted, marketed and on the radar of major international players and government at all levels.

For more details see: [generate-energy.co.uk](http://generate-energy.co.uk)

**“THE GROWTH OPPORTUNITIES ARISING FROM NEW AND EXISTING OFFSHORE WIND DEVELOPMENTS IN THE EAST OF ENGLAND ARE UNPARALLELED. WITH A DEDICATED OFFSHORE WIND SUPPLY CHAIN, A SKILLED ENERGY WORKFORCE AND A WIDE RANGE OF EXCITING ENERGY INFRASTRUCTURE PROJECTS IN PROGRESS, THERE HAS NEVER BEEN A BETTER TIME TO BUILD YOUR OFFSHORE WIND BUSINESS IN THE UK'S CLEAN GROWTH REGION.”**



**IAN PEASE**  
Business Development Manager,  
GENERATE

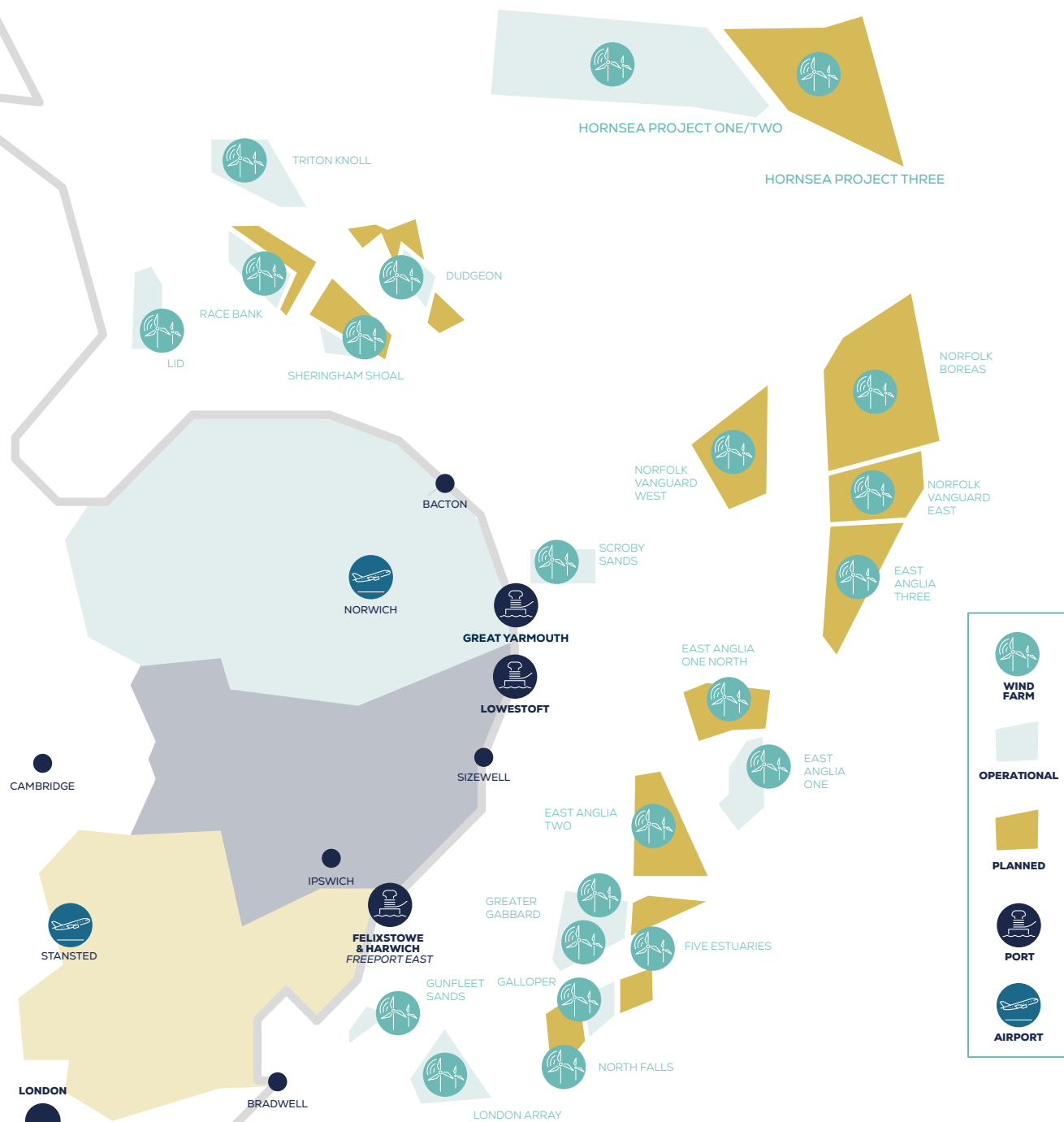




# ENERGY POWERHOUSE

## BUILDING THE UK'S ENERGY SECURITY, POWERING THE ENERGY TRANSITION

The UK SNS is home to one of the world's largest clusters of offshore wind. With 5GW of installed operational capacity, 7.8GW of consented developments and a further 0.9GW in the planning pipeline, there is no better place for offshore wind than the East of England.



Offshore wind installed and operational in the SNS totals 1073 turbines across 16 wind farms.

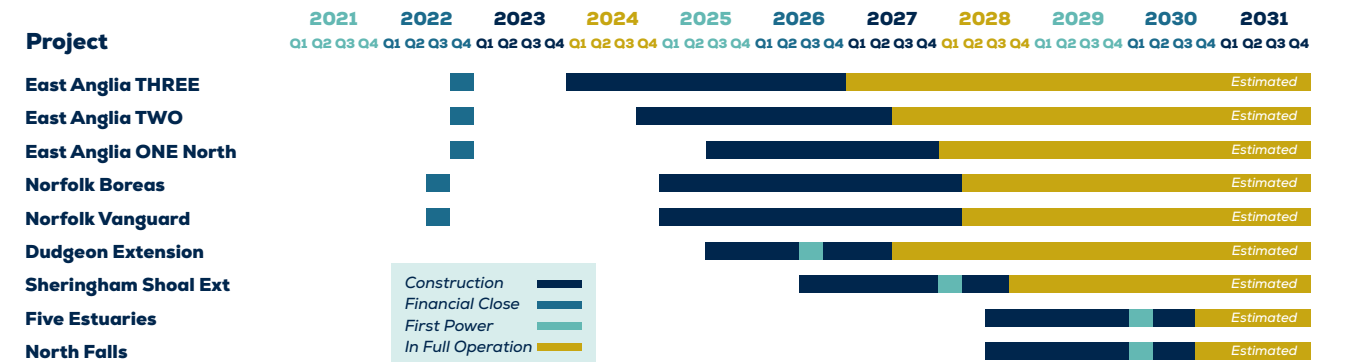
Windfarm	Developer / Operator	Capacity (MW)	No. Turbines	Turbine Model
Scroby Sands	RWE	60	30	V80-2.0 MW
Kentish Flats	Vattenfall	90	30	V90-3.0 MW
Inner Dowsing	SIEMENS	97.2	27	SWT-3.6-107
Lynn	SIEMENS	97.2	27	SWT-3.6-107
Gunfleet Sands	Ørsted	172.8	48	SWT-3.6-107
Greater Gabbard	SSE	504	140	SWT-3.6-107
Sheringham Shoal	Equinor	316.8	88	SWT-3.6-107
Thanet	Vattenfall	300	100	V90-3.0 MW
Lincs	Ørsted	270	75	SWT-3.6-120
London Array	Ørsted	630	175	SWT-3.6-120
Gunfleet Sands (Demo)	Ørsted	12	2	SWT-6.0-120
Kentish Flats Extension	Vattenfall	49.5	15	V112-3.3 MW
Race Bank	Ørsted	573.3	91	SWT-6.0-154
Dudgeon	Equinor	402	67	SWT-6.0-154
Galloper	RWE	353	56	SWT-6.0-154
East Anglia ONE	ScottishPower Renewables	714	102	SWT-7.0-154

Capital expenditure in the East of England's offshore wind sector over the next 10 years is set to exceed £18.75 billion.

Windfarm	Developer	Capacity (MW)	No. Turbines (max est.)	Project Value (£m)	Status
East Anglia ONE North	ScottishPower Renewables	600	41	1300	Consented
East Anglia TWO	ScottishPower Renewables	940	67	2080	Consented
East Anglia THREE	ScottishPower Renewables	1400	95	3120	Consented
Norfolk Vanguard East	RWE	1400	92	3000	Consented
Norfolk Vanguard West	RWE	1400	92	3000	Consented
Norfolk Boreas	RWE	1400	92	3000	Consented
Five Estuaries	RWE	353	79	565	Planning
North Falls	RWE/SSE	504	57	1500	Planning
Dudgeon Extension	Equinor	402	30	665	Consented
Sheringham Shoal Ext	Equinor	317	23	524	Consented
<b>Totals</b>		<b>8.716 GW</b>	<b>668 Turbines</b>	<b>£18.75 billion</b>	

Source: 4c Offshore

The contiguous nature of offshore wind project delivery in the East of England offers long term investment opportunities construction, operations and maintenance activities.



Source: 4c Offshore / OPERGY 2022

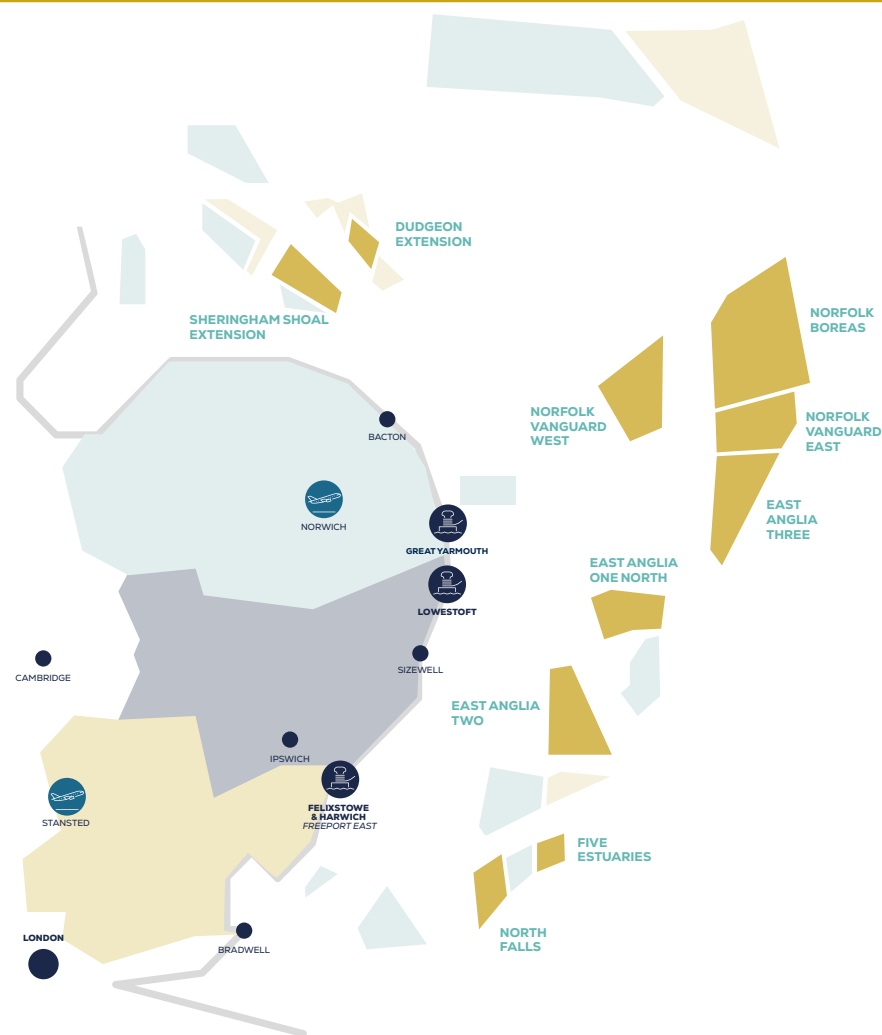
# PROJECT PIPELINE



ScottishPower Renewables is a well-established part of the East of England's clean energy community with its flagship 714MW East Anglia ONE offshore wind farm generating clean energy since 2020, operated and maintained from a state-of-the-art facility in Lowestoft's PowerPark.

East Anglia Hub is a combined build programme comprising of EA THREE, EA ONE North and EA TWO totalling 3.0GW. Plans are well advanced, with development consent granted for EA THREE in 2017 and construction underway. When fully operational, East Anglia Hub will provide enough clean energy to power the equivalent of 2.7 million UK homes.

Capacity:	<b>EA THREE 1.4GW</b> <b>EA ONE North 600MW</b> <b>EA TWO 940MW</b>
No. of turbines:	<b>EA THREE 95</b> <b>EA ONE North 41</b> <b>EA TWO 67</b>
Preferred turbine:	<b>Siemens Gamesa SG 14-222 DD</b>
Combined capex:	<b>£6.5 billion</b>
Water depth:	<b>24.5m to 73m</b>
Foundations:	<b>Grounded: monopile</b>
Construction:	<b>2024</b>



Extensions to Sheringham Shoal and Dudgeon Offshore Wind farms will double the capacity of the existing sites, providing renewable energy to power an additional 785,000 UK homes and making an important contribution to the UK's decarbonisation and energy security goals.

Capacity:	<b>Dudgeon Extension: 402 MW</b> <b>Sheringham Shoal Extension: 317MW</b>
No. of turbines:	<b>Dudgeon Extension: 30</b> <b>Sheringham Shoal Extension: 23</b>
Preferred turbine:	<b>14MW: OEM not specified</b>
Water depth:	<b>11m to 25m</b>
Foundations:	<b>Grounded: not specified</b>
Consent decision:	<b>2024</b>
Construction:	<b>2027</b>



Five Estuaries Offshore Wind Farm is the sister extension project of the existing Galloper Wind Farm, also operated by RWE. It has planned capacity to power up to approx. 380,000 average UK households.

North Falls is being developed by a 50/50 joint venture company owned equally by SSE Renewables and RWE Renewables. It is an extension project to the existing Greater Gabbard Offshore Wind Farm, with a proposed capacity of 504MW enough to power approx. 400,000 average UK households

Capacity:	<b>FIVE ESTUARIES: 353MW</b> <b>NORTH FALLS: 504MW</b>
No. of turbines:	<b>FIVE ESTUARIES: 57</b> <b>NORTH FALLS: 72</b>
Preferred turbine:	<b>Not specified</b>
Water depth:	<b>5m to 59m</b>
Foundations:	<b>Grounded: not specified</b>
Consent Decision:	<b>2025</b>
Construction:	<b>2027</b>



RWE's Norfolk Offshore Wind Zone (NOWZ) was granted development consent in February 2022. Located 47KM from the Norfolk coast, when all wind farms are fully operational, they will provide enough clean energy to power the equivalent of 4.6 million UK homes. In March 2023, the port of Great Yarmouth was selected as the location for the Norfolk projects' O&M base.

Capacity:	<b>Norfolk Vanguard East 1.4GW</b> <b>Norfolk Vanguard West 1.4GW</b> <b>Norfolk Boreas 1.4GW</b>
No. of turbines:	<b>Norfolk Vanguard East 92</b> <b>Norfolk Vanguard West 92</b> <b>Norfolk Boreas 92</b>
Preferred turbine:	<b>Vestas V236-15 MW</b>
Combined capex:	<b>£9 billion</b>
Water depth:	<b>22.5m to 41m</b>
Foundations:	<b>Grounded: monopile (most likely)</b>
Construction:	<b>2026</b>



# PORT OF GREAT YARMOUTH

## OFFSHORE ENERGY CAPABILITY

The port of Great Yarmouth, operated by Peel Ports, is a modern, multi-purpose facility offering 24/7 unrestricted operations. Its deep-water outer harbour can accommodate vessels up to 250m in length and up to 10.5m at chart datum with a 1-2m tidal range, while the river port can accommodate vessels of up to 120m in length, or up to 5.7m at chart datum with a 1-2m tidal range.

The port offers some of the fastest steaming times to installed and planned offshore wind farms in the SNS making it an ideal base for a cluster of energy businesses engaged in offshore wind construction, operations and maintenance.

Peel Ports have a fully functioning North Terminal, with plans to create a new Southern Terminal, consisting of an additional 400m of quay, RoRo ramp, new heavy lift pad area and approx. 10 hectares of strengthened outdoor storage space.

## STEAMING TIMES

Wind Farm Locations	Distance N. Miles	Hours at 12 knots	Hours at 25 knots
East Anglia ONE	34	2.83	1.36
East Anglia ONE North	28	2.33	1.12
East Anglia TWO	28	2.33	1.12
East Anglia THREE	43	3.58	1.72
Norfolk Vanguard East	50	4.17	2.00
Norfolk Vanguard West	31	2.58	1.24
Norfolk Boreas	58	4.83	2.32
Hornsea 1	82	6.83	3.28
Hornsea 2	82	6.83	3.28
Hornsea 3	98	8.17	3.92
Triton Knoll	86	8.17	3.44
Dogger Bank A	137	11.42	5.48
Dogger Bank B	148	12.33	5.92
Dogger Bank C	175	14.58	7.00
Borssele	73	6.08	2.92
South Holland	76	6.33	3.04
North Holland	84	7.00	3.36

### OUTER HARBOUR

- ▲ Quay space – 32,000m<sup>2</sup> (8 Acres)
- ▲ Land potential – 55 acres
- ▲ Deep water for new generation of wind installation vessels
- ▲ No lock or air draught restrictions
- ▲ Heavy lift pad, load bearing capacity of 28t per m<sup>2</sup>
- ▲ RoRo ramp 35m length
- ▲ Mobile heavy lift crane and supporting plant available

- ▲ Multi-million investment for state of the art O&M Campus
- ▲ 24/7 operations
- ▲ Land to lease
- ▲ Installation base for Sheringham Shoal and Lincs offshore wind farms
- ▲ Purpose-built turbine pre-assembly base for Galloper offshore wind farm
- ▲ Construction and installation base for East Anglia ONE offshore wind farm
- ▲ Adaptable storage and warehousing
- ▲ Dry dock facilities
- ▲ Equinor O&M base for SNS offshore windfarms and operations centre for Hywind, Scotland
- ▲ RWE O&M base for Scroby Sands

### INNER HARBOUR

- ▲ Multiple berths
- ▲ Designated offshore berth availability
- ▲ Pontoon potential in designated berths
- ▲ Lock free easy access at all states of tide

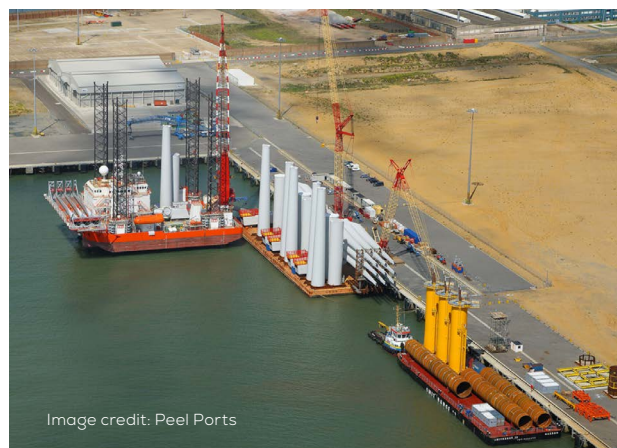
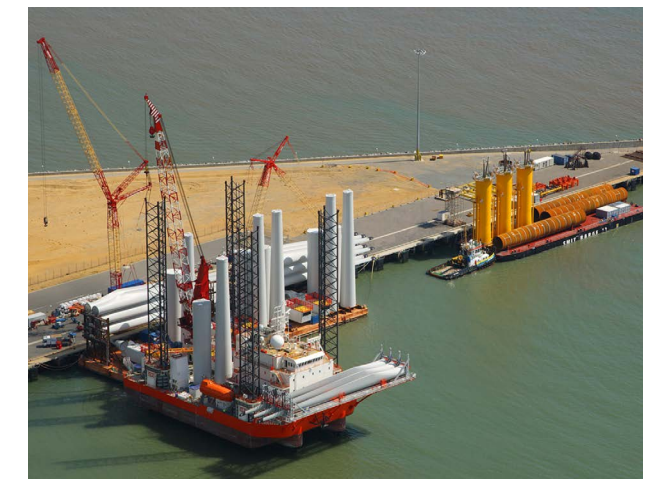


Image credit: Peel Ports





# GREAT YARMOUTH



## GREAT YARMOUTH

Great Yarmouth is a vibrant, entrepreneurial coastal Enterprise Town and home to some of the biggest names in offshore wind with both RWE and Equinor choosing it as the home of their operations and maintenance hubs. Growth of the clean energy sector has resulted in significant investment and development projects taking place in the town in order to create the ideal conditions required for businesses to thrive.

### O&M CAMPUS

The £21.4 million project seeks to capitalise on the now well-established offshore renewables sector off the east coast of Great Yarmouth. Construction started in 2023 with phase 1 due to take around 12 months to complete, it will see 190m of river quay refurbished and upgraded, along with the creation of new vessel pontoons and delivery of a revised road layout and associated infrastructure to optimise the land available for future development.

The O&M Campus is located next to Great Yarmouth's deep water outer harbour and river port with quick access to a new £121million river crossing. The Herring Bridge (pictured), opened in Spring 2024, has improved road transport connectivity between the port and other key employment sites.

#### KEY FACTS:

- ▲ Up to 32,040 m<sup>2</sup> of prime industrial/commercial space
- ▲ 23,960 m<sup>2</sup> of industrial / commercial floorspace and 8,080m<sup>2</sup> of exterior / laydown / storage
- ▲ Providing significant land for office, storage and technical buildings



**DEDICATED TO THE ENERGY INDUSTRY**



**SUPERFAST BROADBAND**



**NEAR PORT & HARBOUR**



**ENTERPRISE ZONE STATUS**



**FAST TRACK PLANNING**

## THE PLACE

Education and skills opportunities address the current skills shortages and future pressure points in this key growth area. A new learning centre and university campus is being planned and will provide an enhanced route to economic activity and support growth.

To complement the O&M Campus, Great Yarmouth Borough Council is leading the development of a business incubator facility that will provide shared workspace and innovation facilities for start-up and small to medium sized businesses in the energy sector. The facility will provide the space to co-locate and work with similar organisations within affordable, adaptable

and flexible workspaces enabling knowledge sharing and business collaboration. Located on South Beach Parade, the incubator will form an important cluster of businesses in Great Yarmouth, increasing employment and entrepreneurial opportunities, benefiting from its close proximity to the port and energy sector hub, located nearby.

**CONTACT:**  
[David.Glason@great-yarmouth.gov.uk](mailto:David.Glason@great-yarmouth.gov.uk)

## GREAT YARMOUTH ENERGY PARK

The Great Yarmouth Energy Park comprises a 50 acre site in South Denes, a prime site near the river port and the deep-water harbour. Suitable for energy and port-related industries, a range of sites for design and build opportunities are available on a freehold or leasehold basis. The park is just a few hundred metres from the new O&M Campus.



## BEACON PARK

Beacon Park is a leading business location on the east coast of East Anglia, an established hub for the energy sector and just 5 miles from the port. The business park, with excellent road access to the A47 through Norfolk provides high-quality office and industrial/warehouse premises with opportunities for bespoke design and build. The units, in a landscaped setting and with good car parking provision, are available to lease or buy with grant support for eligible companies.





# PORT OF LOWESTOFT

## HUB FOR OFFSHORE ENERGY

The Port of Lowestoft, owned and operated by Associated British Ports (ABP), is an important regional sea-servicing route between the UK, Scandinavia, the Baltic states and the rest of Europe.

Lowestoft has emerged as a thriving centre for supporting the offshore energy industry and is home to the O&M bases of SSE and ScottishPower Renewables. The port sees in excess of 6,700 vessel calls, including platform supply, crew transfer, support and marine survey vessels.

## LOWESTOFT EASTERN ENERGY FACILITY (LEEF)

The Lowestoft Eastern Energy Facility (LEEF) is a major port redevelopment project in ABP's Port of Lowestoft's Outer Harbour. LEEF will help to secure the Port of Lowestoft's position as a focal point for supporting the region's offshore energy industry.

The multi-million pound project represents significant investment in state-of-the-art port infrastructure, which includes creating more space on the quay side and deep water berthing. Each berth will have bunkering, water and electricity

connectivity. This will be suitable for O&M activities and construction support for the offshore sector, and will be operational from September 2024.

LEEF is tailored to the offshore energy industry's latest requirements, and creates a highly competitive offer for the region. It will create a step change in marine capability and capacity for offshore wind customers, with three new deep-water berths spanning over 360m, additional CTV berthing capacity and 8 acres of hinterland.



Image credit: Associated British Ports

## OUTER HARBOUR

- ▲ Total port area -39.2 ha
- ▲ Quay length -1,400m
- ▲ No lock or air draught restrictions
- ▲ ScottishPower Renewables and SSE/RWE located on ABP port estate, adjacent to PowerPark

- ▲ Lock free easy access at all states of tide
- ▲ Construction support base for Galloper Offshore Wind Farm
- ▲ Mobile crane at North Quay terminal with 16,000m<sup>2</sup> of storage
- ▲ 5.46 hectares of surface land for redevelopment
- ▲ 8,000m<sup>2</sup> of storage space
- ▲ 3 modern transit sheds
- ▲ Vessel support facilities for CTV operators
- ▲ Dry dock facilities
- ▲ Site of new CO<sup>2</sup> Direct Air Capture (DAC) demonstrator in partnership with Sizewell C

## INNER HARBOUR

- ▲ Quay length - 2,100m
- ▲ Surrounding Enterprise Zones
- ▲ 24/7 operations



## STEAMING TIMES

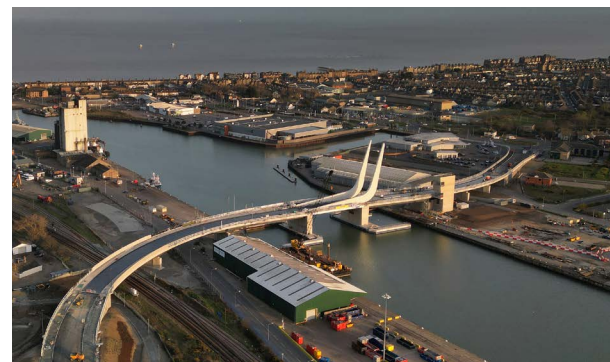
Wind Farm Locations	Distance to Centre (nm)	Time at 25 knots (hr)	Distance to Edge (nm)	Time at 25 knots (hr)
East Anglia ONE	31.7	1.3	29.3	1.2
East Anglia ONE North	26.5	1.1	21.5	0.9
East Anglia TWO	25.9	1.0	22.3	0.9
East Anglia THREE	43.8	1.8	40.1	1.6
Galloper (A)	34.0	1.4	31.0	1.2
Galloper (B)	45.6	1.8	41.7	1.7
Greater Gabbard (A)	34.8	1.4	31.5	1.3
Greater Gabbard (B)	44.0	1.8	41.9	1.7
Norfolk Boreas	57.6	2.3	48.4	1.9
Norfolk Vanguard East	49.9	2.0	43.2	1.7
Norfolk Vanguard West	40.9	1.6	35.8	1.4



# LOWESTOFT

## GULL WING LOWESTOFT

Work is nearing completion on the new £145 million Gull Wing Bridge in Lowestoft. The town's third river crossing will drive economic regeneration in the area and enhance road transport connectivity in Lowestoft.



## POWERPARK, LOWESTOFT

PowerPark, located immediately to the north of the port of Lowestoft's outer harbour, has been designated as a location for clean energy businesses, building upon the success of existing operators and supply chain companies resident in the area.



Business confidence is already high in PowerPark, home to a number of offshore wind developers and operators, including SSE/RWE's Greater Gabbard Offshore Wind Farm base and ScottishPower Renewables' £25 million East Anglia One O&M base.

## NEW PROPERTY FOR ENERGY BUSINESSES

To support businesses investing in Lowestoft, a high-quality scheme comprising of 16 flexible units ranging from 34m<sup>2</sup> to 117m<sup>2</sup> is coming to PowerPark in 2024.

The Nexus is a £4.27 million development by East Suffolk Council on Newcombe Road which will include modern business units available to let for office and light industrial uses with allocated on-site EV parking.

The development offers easy access to the port of Lowestoft, OrbisEnergy and East Coast College's Energy Skills Centre and is due to be completed in October 2024.



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DEDICATED TO THE ENERGY INDUSTRY



SUPERFAST BROADBAND



NEAR PORT & HARBOUR



ENTERPRISE ZONE STATUS



FAST TRACK PLANNING

## CLEAN ENERGY INNOVATION HUB

At the heart of PowerPark is the well-established and internationally recognised, innovation and incubation hub for clean energy business, OrbisEnergy. Offering flexible workspaces, hot desks, conference and meeting facilities and virtual office solutions, the OrbisEnergy ecosystem includes leading energy-related companies and the Offshore Renewable Energy (ORE) Catapult. OrbisEnergy is home to over 40 businesses both physically and virtually, providing a landing pad for inward investors and a launchpad for ambitious clean energy companies.

CONTACT:  
[orbisenergy@vertas.co.uk](mailto:orbisenergy@vertas.co.uk)



## FREEPORT EAST

Freeport East, centered around Harwich and Felixstowe, received final approval from HM Government in January 2023. It offers customs incentives for the import of raw materials and components which are processed and manufactured for export as well as financial incentives for inward investors.



Proposed Bathside Bay Offshore Wind Terminal site  
 Image credit: Freeport East

Energy from offshore wind generated in the Southern North Sea will supply a Green Hydrogen Hub with electrolysed hydrogen planned in or close to both ports in order to supply local transport and heat offtakers.

Bathside Bay in Harwich plans to build a Green Energy Hub, including 1.45 km of quayside and 122 hectares of development land behind it to help address the capacity shortages in the UK port sector to meet the significant opportunity offered by floating offshore wind (FLOW).

CONTACT:  
[enquiries@freeporteast.co.uk](mailto:enquiries@freeporteast.co.uk)



# GENERATE

Unlimited opportunities in the East of England



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