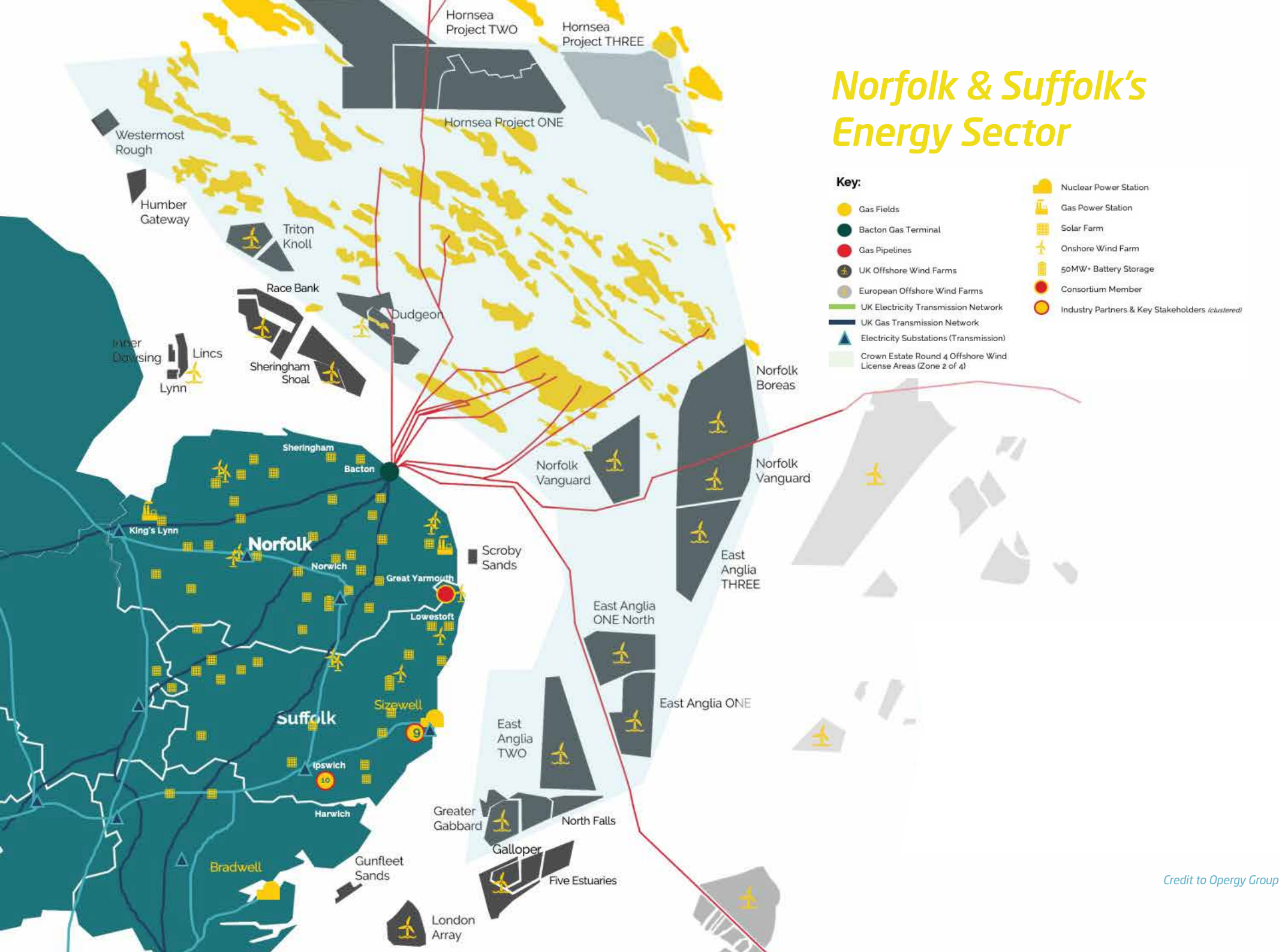


Norfolk  
& Suffolk  
*Unlimited*



*Energy Sector Recovery  
and Resilience Plan*



# Norfolk & Suffolk's Energy Sector

# Foreword

There is no question that Covid-19 has wrought untold damage on the economy and our energy sector has been severely affected. The recovery from this crisis will not happen overnight but we still have a positive future ahead of us.

Norfolk & Suffolk's energy sector has a lot to play for over the coming years and is perfectly placed to capitalise on the opportunities on the horizon. If anything, this pandemic has underlined the importance of resilient energy systems and how clean energy has to be at the core of economic recovery, locally, nationally and globally.

With the potential to supply up to 50% of the UK's 40GW target by 2030 and the proposed new nuclear power station at Sizewell expected to meet 7% of the country's demand, this region will take a very active role in delivering the Government's 10-Point Plan for a Green Industrial Revolution.

This Energy Sector Recovery Plan sets out the opportunities presented by our sector deals and our ambition to become the UK's Clean Growth Region, as well as the challenges that lie ahead, such as labour shortages and skills gaps.

Most importantly of all, it identifies the actions needed to drive the recovery and underlines the close collaboration that will be essential if our world class energy industry, of which we are so rightly proud, is to continue fulfil its ambitions. Together we can ensure it not only recovers but thrives.



*Mark Goodall, Chair of the All Energy Industry Council*



*CJ Green, Chair, New Anglia LEP*



*Credit to Opergy Group*





**£138 billion capital investment in energy and low carbon projects across East of England by 2050**



**Bacton Gas Terminal and network of offshore gas platforms supplies over a third of the UK's low carbon transition fuel**



**100 gas fields, over 150 gas-related platforms and 4,500km of pipelines**



**More than 4,166 businesses and 35,432 employees in energy and low carbon industries**



**4.6GW or 44% of the UK's 10.4GWs of operational offshore wind power off the coast of Norfolk and Suffolk**



**Experts across the nuclear lifecycle**



**£181,022 GVA per job**



**47% of the UK's fleet of wind turbines**



**Sizewell C expected to meet 7% of UK's energy needs when operational**



**£59.4bn capital investment in offshore energy and engineering by 2040**



**12,000 jobs in the wider supply chain**

## All Energy in the East of England

The East of England has become the UK's epicentre for energy generation with its unique mix of onshore and offshore renewables, gas and nuclear generation and emerging opportunities for hydrogen. With more than half a century of offshore experience in oil and gas and 20 years in offshore wind, Norfolk and Suffolk has a unique blend of ports, infrastructure, expertise, skills and innovation to now play an important role in delivering the integration needed to meet the UK's transformational ambition to net zero greenhouse gas emissions whilst reducing cost to the consumer. Onshore, existing and new nuclear power generation further strengthens the region's place at the heart of the UK's whole energy journey to Net Zero and with geographical conditions that will ensure large scale solar, onshore wind and bioenergy will also deliver significant contributions - the region is ready to deliver a growing contribution to the energy mix.

This Plan takes into account the Offshore Transmission Network Review (OTNR), which is being led by the Department for Business, Energy and Build Back Better, Government's plan

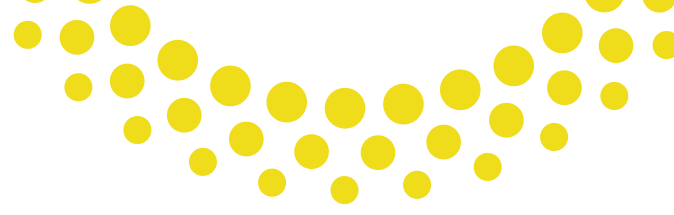
for growth. This comprises various "studies/projects" being undertaken looking into the wider issue of grid connection associated with the offshore wind energy sector, which include:

1. National Grid (Electricity System Operator - ESO) – Assessing the grid connection options associated with an expanded offshore wind energy sector (see below – Offshore Coordination Project);
2. Business Energy and Industrial Strategy (BEIS) – BEIS are currently assessing the regulatory regime in respect of grid connection to facilitate a more sustainable and efficient electricity distribution network. This is complementary to the above technical work being carried out by the NGESO; and
3. Crown Estates as part of the Fourth Round licensing are undertaking strategic studies around onshore environmental and community sensitivities to support the Round 4 pre-application discussions.

## The UK's Clean Growth Region: Our journey so far

Norfolk and Suffolk has a commitment to be the UK's Clean Growth Region and has made significant strides in supporting the drive to net zero as well as boosting the energy sector through:

- Developing a strong brand and messaging to raise the profile of Norfolk and Suffolk to generate new investment and employment opportunities
- Supporting and encouraging world class research across the energy sector and expanding our reach to support the sustainable clean growth agendas
- Support the development of a major Strength in Places funding bid for the SuNRise Coast initiative
- Supporting new energy projects and initiatives such as the Bacton hydrogen hub, working in partnership with Hydrogen East, OGTC, ORE Catapult and North Norfolk District Council
- Supporting development on the energy focused Enterprise Zones to help boost the supply chain for the sector
- Focusing on supporting energy companies with their investment and export plans via grant support and developing international connections such as the east coast USA
- Supporting the Offshore Renewable Energy Catapult with LEP funding for a Regional Manager based in Orbis Energy Centre and support for the new Fit4Offshore Renewables programme helping local businesses transition into the offshore wind supply chain
- Funding support to boost the network of digital training centres and institutes across the region in Norwich, Ipswich and Adastral Park to help drive the digital revolution and help support opportunities within energy sector with new technologies including artificial intelligence, cyber security and 5G
- Supporting our physical infrastructure bridges, roads and ports as well as our digital and 5G connections through new investment in new digital infrastructure
- Development of a decarbonisation academy
- Production of an alternative fuels strategy to progress opportunities with regards to electric and hydrogen powered vehicles
- Delivering the Freeport East ambitions following the successful bid to government, which has a strong focus on supporting the road to net zero, such as the development of a Green Hydrogen Hub.



### Offshore Wind

Norfolk and Suffolk are part of the UK's largest offshore wind cluster and key players in the world's market for offshore wind energy, worth almost £1bn a year. In 2020, the coastal zone off Norfolk & Suffolk is home to **4.6GW or 44%** of the UK's 10.4GWs of operational offshore wind power. This equates to **1073 operational wind turbines** or **47% of the UK's total fleet** of 2292 wind turbines. The Southern North Sea has an 8.5GW offshore wind construction pipeline

The two counties have the potential to benefit more than any other area in England from growth in offshore wind that will require a diverse mix of skills, with an additional 6,150 full time well-paid, highly productive jobs forecast to be created by 2032, equating to more than **600 percent growth**.

With the ports of Great Yarmouth and Lowestoft, Norfolk and Suffolk has world-class operations and maintenance facilities in place. Combined with over 50 years of experience supporting the offshore gas industry, the ports have become strategic centres for the offshore wind sector, positioning themselves as England's premier energy ports, with the potential for further growth and planned developments.

OrbisEnergy, Lowestoft is home to an Offshore

Renewable Energy Catapult regional office as well as being an incubation centre for clean energy companies. Both Lowestoft and Great Yarmouth has Enterprise Zone status for land to develop manufacturing facilities and house supply chain companies. The Enterprise Zones offer support to further build the energy cluster across all parts of the industry, from offshore wind operations and maintenance to the transition to hydrogen production.

### Oil & Gas

The Southern North Sea (SNS) is the UK's natural gas basin, with a third of the UK's domestic gas requirements handled at the Bacton Gas Terminal in North Norfolk. The area hosts over 100 gas fields, over 150 gas-related platforms and 4,500km of pipelines. There is still 5 trillion cubic feet left untapped gas in the SNS basin which will ensure the East is still a recognised site of high importance for UK PLC with a projected £5.3 billion investment by 2050.

The region is well placed to receive a significant portion of the predicted £2.5 billion to decommissioning redundant South North Sea gas assets to 2030 (based on OGA UKCS Decommissioning Cost Estimate 2020 report).

New and innovative energy technology concepts are

being investigated in Norfolk and Suffolk, including offshore desalination, leading to hydrogen fuel production; carbon capture and storage; and gas to wire developments linked to the rejuvenation of the Southern North Sea.

Already a national asset in the region, Bacton has the scope to be developed into a major innovation and demonstration project (Bacton 2.0) for new energy, including hydrogen. This would not only provide reductions in carbon, but also allow for SNS gas assets to be extended beyond the current forecast **40-50 years**. An OGA study published at the end of March 2021 has concluded that the Bacton area has the potential to demonstrate energy transition in action by becoming a significant hydrogen production site for London and the South East.

Coastal protection works are in place, including a UK-first innovative sandscaping project to protect Bacton Gas Terminal and the surrounding area for at least a further 25 years. This report recognises the vital role natural gas will play as part of the 'energy transition' as the UK moves towards a net-zero economy.



Significant sandscaping work has been undertaken to secure the land in front of the Bacton Gas Terminal

### Nuclear

Suffolk is home to three nuclear power stations at different stages of their planning and lifecycles – Sizewell A is in decommissioning; EDF's Sizewell B is the UK's only pressurised water reactor in operation. The station employs **500 permanent staff** working alongside 300 year round contractors. Sizewell B brings £40 million into the local economy every year and an extra **£30 million** in an outage year where the workforce can grow by an extra 1000 people. The Sizewell C nuclear new build project is seeking development consent. According to a 2021 EY report, commissioned by the Sizewell C Consortium, £4.4bn of the construction cost of Sizewell C is estimated to be spent in the East of England, of which £2bn is estimated to be spent in Suffolk alone. During the 60-year operations phase, **a total of £16.1bn is estimated to be spent in the East of England**, of which £12.7bn is estimated to be spent in Suffolk alone. Furthermore, at its peak, the construction of Sizewell C will employ close to **24,000** directly and indirectly in its supply chain – double the peak achieved during the construction for the London 2012 Olympics. The Sizewell C project aims to create **1,500** apprenticeships and help them into the labour market by equipping them with technical and core skills.

### Onshore Renewables & Energy Systems

Norfolk and Suffolk is a leading area for onshore renewables including animal waste biomass installations with a third of the national capacity in two large plants at Thetford and Eye power stations.

One of the UK's newest straw-fed biomass plants has opened at Snetterton, whilst brewer Adnams operates an anaerobic digester which was the first to export biogas to the grid produced from brewery and food waste. The bioenergy industry is worth nearly £2bn and is based on the scale of agriculture locally, with 13.7 per cent of England's crop output and 9 per cent of the livestock output. Norfolk and Suffolk is the largest straw-producing area in the UK, with 313,000 hectares of cereals and 60,000 hectares of oilseed crops, with an estimated straw yield of 1.06m tonnes per year. With the region's sizeable agri-food sector, animal waste and biomass present a significant opportunity for sustainable energy generation.

Norfolk and Suffolk is working through the BEIS (Business, Energy and Industrial Strategy) supported Greater South East Energy Hub to help provide support in thinking innovatively about local and sustainable energy solutions. The Local Energy East strategy, developed in partnership with neighbouring LEPs, sets out collective local energy ambitions to 2030 and is underpinned by a range of activities which are being take forward.

Bringing together all partners across the energy system, Government, education and industry and led by the Offshore Renewable Energy (ORE) Catapult, an exciting new initiative is being developed to deliver a collaborative, cross-sector, integrated energy system Centre of Excellence. The key driver

for this project is to develop a combined, holistic approach to energy production, transmission, distribution and consumption through a cleaner, decarbonised, integrated energy system which will move the UK closer to the net zero target.

**1073 operational wind turbines or 47% of the UK's total fleet of 2292 wind turbines**

**Norfolk and Suffolk is a leading area for onshore renewables including animal waste biomass installations**



All Energy Coast - Image by Jan Arne Wold



# Norfolk & Suffolk's Strategic Assets

These strategic assets are supporting all energy companies and helping to deliver Government's Build Back Better plan for growth.

## Business Environment



- ❖ **OrbisEnergy** – a specialist innovation and incubation centre for clean energy businesses.
- ❖ **The East of England Energy Group (EEEGR)** bringing together and supporting nearly 300 energy businesses.
- ❖ **Fit 4 Offshore Renewables (F4OR)** New Anglia, a partnership between New Anglia LEP and the ORE Catapult supporting the development of competent, capable, and competitive UK offshore renewable energy supply chain.
- ❖ **Nuclear Readiness Programme** funded by New Anglia LEP supporting local businesses to develop the skills they need for nuclear site development and operations.
- ❖ Local partners collaborating to promote the **East of England Energy Zone** on a national and international stage to promote export and inward investment.
- ❖ **Business support** through the New Anglia Growth Hub with access to sector specialists and a number of grant programmes.
- ❖ Activity engaged business intermediaries including local **Chambers of Commerce** ensuring the wider business community is involved and engaged with opportunities.
- ❖ Network of business & innovation centres including the **Hethel Innovation Centre** to enhance wider supply chain opportunities.
- ❖ **Sizewell C Supply Chain Platform** led by Suffolk Chamber of Commerce with EDF enabling local businesses to register their interest in future potential contract opportunities for nuclear new build



OrbisEnergy

## Innovation



- ❖ Offshore Renewable Energy Catapult regional office at **OrbisEnergy**, bringing together industry and academia to drive innovation in renewable energy.
- ❖ **University of East Anglia (UEA)** is world-leading and hosts the Tyndal Centre for Climate Change Research, which brings together scientists, economists, engineers and social scientists.
- ❖ **Globally recognised research institutes** working together with industry to drive innovative economic development of the region as a clean energy powerhouse for the UK. Suffolk & Norfolk Research & Innovation on the Sustainable Energy Coast is led by the University of East Anglia, working with the UK's **Centre for the Environment, Fisheries and Aquaculture Science (Cefas)**, headquartered in Lowestoft, and the **Offshore Renewable Energy (ORE) Catapult**.
- ❖ Hydrogen East developing potential pathways for a regional hydrogen economy.
- ❖ More than **15 years of collaboration** with major wind clusters across Northern Europe to drive innovation, with successful projects such as the EU-funded Inn2Power.
- ❖ Pioneering funding mechanisms for clean growth innovation including the Low Carbon Innovation Fund, New Anglia Capital and Growth Through Innovation, backed by the East of England Investment Catalyst.

## Place



- ❖ **Enterprise Zone Status** for land to develop manufacturing facilities and house supply chain companies. The Great Yarmouth and Lowestoft Enterprise Zone covers six sites, focusing on growing energy related businesses.
- ❖ Norfolk and Suffolk has excellent proximity to the market and UK and European North Sea offshore energy clusters.
- ❖ **Shallow water, deep-water ports** and ideal weather conditions of the Southern North Sea (SNS) offer offshore wind developers and their supply chains, the perfect environment.
- ❖ Flat topography of East Anglia supports the development of solar arrays in the region.
- ❖ A leading centre for **gas exploration and production**



Port and Logistics - Image by Mike Page

## Infrastructure



- ❖ **Deep water port** at Great Yarmouth which has recently invested **£12million** in upgrading quays storage areas and equipment. The Port has ambitious plans to develop an Operations and Maintenance (O&M) campus for the offshore energy industry reducing costs and maximising efficiency.
- ❖ Exciting new developments such as **PowerPark** in Lowestoft, bringing together a cluster of energy businesses.
- ❖ **£67m** investment in **flood defences** (Lowestoft)
- ❖ **£143m** Gull Wing bridge connecting inner and outer harbour (Lowestoft)
- ❖ The Port of Lowestoft has agreed a **30-year deal with ScottishPower Renewables** to be a construction support and O&M hub for its East Anglia ONE offshore wind farm.
- ❖ **£120m** new river crossing in Great Yarmouth linking major road infrastructure to the port and South Denes Enterprise Zone

## Skills



- ❖ New Anglia LEP has invested in a number of projects to drive forward skills provision in the region, including **£10 million for the Energy Skills Centre** at East Coast College, the new **STEM campus** at West Suffolk College and **£4.4 million for Productivity East** at the University of East Anglia driving forward engineering and technology skills in the region.
- ❖ Our regional Skills Advisory Panel has energy sector specialists driving sector skills priorities across a number of major projects such as the **Offshore Wind Skills Centre**.
- ❖ **EEEGR's Skills for Energy programme** has acted as the conduit between industry and skills and education providers in the energy sector since 2005.
- ❖ Chosen to host a **pilot Decarbonisation Academy**, developing the institutional and physical infrastructure to support a rapid deployment of high-quality training programmes linked to cutting edge property decarbonisation schemes.
- ❖ West Suffolk college have recently been appointed an **accredited provider of employer led skills** and training by the National College for Nuclear for the Eastern region presenting significant opportunities to support the skilled workforce planned for Sizewell C.

## Business Resilience

**The impact of the Covid-19 pandemic has been profound. Tens of thousands of lives lost, lockdown restrictions which have affected our daily lives, and significant damage to our local and national economy. Thousands of businesses have been forced to stop trading entirely, or seen income levels reduce sharply, but there are some that are innovating and thriving. The impact across sectors varies.**

The energy sector has been affected by the crisis, which has slowed transport, trade, and economic activity around the world. What has become clear during this pandemic is that energy security and resilient energy systems are at the heart of our economy and fundamentally indispensable and clean energy transitions must be at the core of economic recovery locally, nationally, and globally.

According to the IEA, as a consequence of global lockdown measures due to the Covid-19 crisis, mobility – **57% of global oil demand** – declined at an unprecedented scale in early 2020. After correcting for weather effects, full lockdowns have reduced daily electricity demand by at least 15% in France, India, Italy, Spain, the UK, and the US northwest. Almost all investment activity has faced some disruption due to lockdowns, whether because of restrictions on the movement of people or goods, or because the supply of machinery or equipment was interrupted. But the larger effects on investment spending in 2020, especially in oil, stem from declines in revenues due to lower energy demand and prices, as well as more uncertain expectations for these factors in the years ahead.

The wider economic and political implications of the UK's exit from the EU also have a significant part to play in the availability of our future workforce and plans for the coming years.

The energy provisions in the UK and EU Trade and Cooperation Agreement (TCA) support and strengthen the UK and the EU's respective energy and climate ambitions. This includes the way in which the parties trade electricity and gas over interconnectors, work together on security of supply, integrate renewables into our respective markets and cooperate to develop opportunities in the North Sea. This will facilitate the development of hybrid projects that combine interconnectors and offshore windfarms and opens up the potential for a North Sea grid. The TCA also supports trade and investment in energy goods and raw materials between the UK and EU. These will help facilitate open and competitive markets, removing unnecessary barriers to trade.

However, the UK is now out of the EU's internal energy market, which means it no longer has access



Greater Gabbard Offshore

to day-ahead or intraday trading tools that make the exchanges quicker and cheaper. Power bills that are expected to be 2 to 5 percent more expensive, while energy traders will need to deal with new paperwork for each exchange made. The UK has also left the EU's Emissions Trading System. The UK has created a domestic version, but linking the systems is supported from businesses and governments in the UK and EU in order to beef up the mechanism used to crack down on greenhouse gas emissions.

The TCA commits both Parties to develop and implement new, efficient trading arrangements by April 2022. These will ensure that capacity on the interconnectors is maximised and that there is implicit trading in how this capacity is allocated (i.e. capacity and electricity are sold together). This will help integrate renewables and other clean technologies onto the grid in line with domestic commitments to net zero emissions. Whilst this system is being implemented, alternative trading arrangements will be in place for electricity. Arrangements were also agreed that will ensure that we continue to trade gas efficiently via the PRISMA platform.

The energy chapter expires on 30 June 2026, unless both the EU and the UK agree to extend the arrangement on an annual basis. So while the 2020 agreement negotiations may be over, discussions will continue ahead of that 2026 deadline. Separate to the TCA, the UK and Euratom signed a Nuclear Cooperation Agreement which gives a legal underpinning to civil nuclear cooperation, including safeguards, safety, and security.





## Build Back Better & Net Zero

As the UK's Clean Growth Region, we are committed to supporting the delivery of Government's plan for growth 'Build Back Better', as well as tackling the challenges and opportunities of climate change. We know that this will now be a greater challenge due to the global economic shock caused by Covid-19, but as a region we are working together to meet the challenge, and with new opportunities emerging which present significant advances in some areas of the economy, Norfolk and Suffolk are well placed to make a significant contribution.

Ahead of the COP26 Climate Summit in November 2021, the Government will publish a national Net Zero strategy outlining its vision for transitioning to a Net Zero economy. We are therefore excited to continue our work to support innovation and technological advancements and ensure that the local economy is focused on supporting government's Net Zero target.

- 1. Offshore Wind:** The region is home to the UK's leading offshore wind cluster with the potential to provide up to 50% of the UK Government's 40GW target by 2030. We are keen to work with Government to continue the rollout of offshore wind, which will bring with it manufacturing and operations and maintenance jobs, as well as working to minimise the impact of cabling and substations on our landscape.
- 2. Hydrogen:** Hydrogen East was launched to analyse the potential pathways for the development of a regional hydrogen economy that will support delivery of other regional economic and clean growth priorities. The network is supported by leading businesses in the sector, including New Anglia Local Enterprise Partnership, and will work with public and private sectors to identify options to deliver a viable route map that builds our assets such as Bacton to become a leading 'hydrogen region'.

Norfolk and Suffolk will play an active role in delivering the Government's 10 Point Plan and the All Energy Industry Council welcomes the Ten Point Plan for a Green Industrial Revolution.

- 3. Nuclear:** The proposed new nuclear power station on the Suffolk coast is expected to meet 7% of the UK's demand when it comes into service. Estimates say it would inject up to £200m a year into the regional economy during peak construction and £40m per year during its 60 years of operation. Furthermore, it would create 25,000 roles during the construction phase with 900 permanent operational jobs created, plus the need for an 'outage' workforce. To ensure the region maximises these opportunities, the LEP is working with local councils and colleges to support local businesses with upskilling their workforce as well as encouraging support for new apprenticeships and jobs. The project will also deliver 1,500 apprenticeship positions and support the national Kickstart scheme.







**4. Electric Vehicles:** The Norfolk and Suffolk Local Industrial Strategy recognises that the electrification of transport, including last mile connectivity, and wider innovation in engineering, technology and business models, are critical to meeting the ambitions set out in the future of mobility Grand Challenge and supporting the Government’s ambition for all new cars to be electric by 2040. We have a number of pioneering businesses developing electric vehicle technology, including Lotus (developing a Lightweight Electric Vehicle Architecture (LEVA), which will underpin a range of next-generation EVs), Equipmake (recently opened a new factory to manufacture its fully integrated electric bus chassis) and EO Charging (manufacturing EV charging infrastructure for over 30 countries).

**5. Public transport, cycling and walking:** We are committed with our partners to deliver an integrated approach to infrastructure and inter-regional connectivity to maximise clean growth impacts locally and for UK plc. We are working with Network Rail and train operators to secure improvements on our rail network and we are also liaising with Connected Places Catapult to maximise the future of mobility opportunities locally. Local authorities, led by the two county councils, are meanwhile leading the way in investing in cycling and pedestrian infrastructure in our major towns and rural areas and we are keen to go even further and faster.

**6. Jet Zero and greener maritime:** The Felixstowe Blue Tech Transformation project is using 5G-enabled capabilities to transform the services and connected business ecosystem of Britain’s biggest and busiest container port. Felixstowe plays a pivotal role in keeping the UK’s trade moving, and this initiative will transform its efficiency, capacity, flexibility and carbon footprint, to create a true world leader in logistics management. Meanwhile the region’s most prominent energy, marine and environmental science research centres, together with regional business, are partnering on a new

collaborative bid which will further enhance East Anglia as a clean energy powerhouse for the UK and promote economic and environmental sustainability.

**7. Homes and public buildings:** The Energy Systems Catapult estimates that five homes need to be decarbonised every minute to achieve the governments net zero by 2050 target. We are working alongside the ESC and partners as one of two pilot areas selected by the Greater South East Energy Hub to host a Decarbonisation Academy, developing a global and whole house skills and training approach that is needed to meet this challenge.

**8. Carbon Capture:** Southern North Sea gas fields are ideally positioned to play a key role in carbon capture and storage, and we are keen to see the existing infrastructure used to support this. We are keen to engage further with Government to enable the region to become a ‘test and demonstration zone’, highlighting its national and global value.

**9. Nature:** Norfolk and Suffolk is blessed with some of the most attractive and environmentally sensitive locations in the country and the Broads Authority and local councils have ambitious plans to protect and restore the natural environment, working with landowners. There are significant opportunities to adapt agricultural land use to reduce the region’s carbon footprint as well as plans to plant significant numbers of trees.

**10. Innovation and Finance:** BT’s global R&D headquarters at Adastral Park, Suffolk is the UK’s leading patent filer for AI technologies a key technology, driving innovation in the energy sector. When it comes to climate change, the University of East Anglia (UEA) is world-leading and in 2000 the UK Government chose the UEA as the site for the Tyndal Centre for Climate Change Research. Along with our region’s burgeoning renewable energy sector and expertise in technologies such as AI and machine learning, it is helping us achieve our goal of being the UK’s clean growth region.

The Energy Systems Catapult estimates that five homes need to be decarbonised every minute to achieve the governments net zero by 2050 target.



Dudgeon offshore wind farm - Image by Jan Arne Wold



Southern North Sea gas fields are ideally positioned to play a key role in carbon capture and storage, and we are keen to see the existing infrastructure used to support this.

Sunrise at Dudgeon - Image by Roberg Gregory Yorke



### Sector Deals

Norfolk and Suffolk is taking a key strategic role in delivering the energy related Sector Deals that have been published to date. Our geographical position, expertise across all energy forms and infrastructure pipeline show that we are at the centre of the UK's offshore wind ambitions and commitment to nuclear new build and a great deal of activity on the ground has been achieved since both documents were published.

#### Offshore Wind Sector Deal

Since its launch in Great Yarmouth and Lowestoft, local partners have continued to collaborate effectively to support the local delivery of the Offshore Wind Sector Deal. Roughly half of the Sector Deal's 30GW by 2030 ambition will be delivered off the coast of Norfolk and Suffolk, with 14.5GW in the existing pipeline. Local partners are working to support the supply chain, deliver the Sector Skills Plan to realise the forecasted 600 per cent growth in well-paid skilled work (6,150 FTEs) and meet the projected operations and maintenance opportunity worth £1.3bn per annum by 2025 in the East of England. 2020 has seen the launch of the Fit 4 Offshore Renewables New Anglia Programme, a partnership between New Anglia LEP and the ORE Catapult, with 15 businesses working towards accreditation.

### Nuclear Sector Deal

Norfolk and Suffolk is using its expertise across the nuclear fuel lifecycle to reduce costs of decommissioning and the proposed costs for Sizewell C. New Anglia LEP is working closely with BEIS, Nuclear AMRC and fellow nuclear clusters around the UK with a business case for the supply chain and productivity improvement programme. This will focus on knowledge transfer from Hinkley Point C to Sizewell C and builds on local supply chain activity already underway by Suffolk Chamber of Commerce and EDF Energy. Local partners are also delivering the Energy Sector Skills Plan across all forms of energy.

#### North Sea Transition Sector Deal

Given our location and expertise across all energy, Norfolk and Suffolk is perfectly placed to grasp the opportunities presented for the oil and gas sector to work together over the next decade and beyond to deliver the skills, innovation and new infrastructure required to 'decarbonise North Sea production'. East of England partners, including the LEP, the All Energy Industry Council and the East of England Energy Group (EEEGR) will work closely together to ensure the region is recognised as a UK leader in energy production, distribution and transition and is perfectly placed to be at the centre of the North Sea transition opportunities.

**Our geographical position, expertise across all energy forms and infrastructure pipeline show that we are at the centre of the UK's offshore wind ambitions**

**2020 has seen the launch of the Fit 4 Offshore Renewables New Anglia Programme, a partnership between New Anglia LEP and the ORE Catapult, with 15 businesses working towards accreditation.**

### Cross sector opportunities

Partners have also coordinated their work through the All Energy Industry Council to determine where cross-transferable opportunities exist and can be pursued such as skills and investing in opportunities such as East Coast College's Energy Skills Centre.

Our region has a wealth of engineering knowledge and experience, and a skilled workforce who could make a transition into our clean energy sectors. Experience is not only needed in construction, operations and maintenance but there is also a need for management and commercial experience which can help to develop green energy projects along with cutting-edge innovative technologies. Driving transferable skills is key to recovery of the energy sector.

### Grand Challenges

The UK is at the forefront of the industries of the future, ensuring that we take advantage of major global changes, improving people's lives and the country's productivity. With Norfolk and Suffolk's leading-edge energy research, development and innovation capabilities, the region is supporting the

UK's Grand Challenges including pushing the boundaries on the Future of Mobility from the use of autonomous underwater vehicles that can take personnel out of hazardous subsea environments to drones which can perform inspections of offshore assets. Contributing to tackling the Ageing Society Challenge, the region is working with the Greater South East Energy Hub to transform the local energy system, ensuring that local communities benefit from Norfolk and Suffolk's strengths and reducing fuel poverty, so often a challenge for older people. Artificial Intelligence and Data are transforming all sectors of the economy and has the potential to revolutionise the energy sector. The region is at the forefront of digital innovation and home to BT's global R&D headquarters at Adastral Park, the third largest patent filer in the UK and number one for artificial Intelligence technologies. As we support this Grand Challenge it is imperative that we leverage this capability to develop energy sector solutions.

**With the North Sea Transition Deal, this provides yet another opportunity for our unique region to support the transition to Net Zero**





Scottish Power Renewables

## Our Ambitions

The Draft Local Industrial Strategy for Norfolk and Suffolk clearly sets out the ambition to be recognised as the UK's Clean Growth Region, a globally recognised, technology driven, and inclusive economy which is leading the transition to a zero carbon economy through sustainable food production and sustainable energy generation building on our world leading clean energy industry, agri-food sector and expertise in digital technology.

We know that we can take a leading role in tackling the challenges we face globally as look to the future. The region's clean energy sector could be at the forefront of renewing the economy post-pandemic, leading the charge for a green recovery, and accelerating the transition to a zero-carbon economy.

Our vision is for Norfolk and Suffolk to be a global exemplar for clean, low carbon energy production, exporting services and skills globally, whilst increasing the availability of affordable sustainable energy for local communities and businesses.

Planned investment in new generation projects will result in Norfolk and Suffolk being the largest contributor of clean energy to the UK and central to the UK's successful national transition to a zero-

carbon economy. However, we know we also need a combined, holistic approach to energy production, transmission, distribution and consumption – an integrated energy system that builds on our regional cross sector strengths to focus the collective expertise and resources.

Collaboration and strong leadership are vital. The sector's ability to work together has been demonstrated by the work of the All Energy Industry Council, and this partnership and expertise across all energy sectors will be pivotal to the plans for recovery to help lead us out of these challenging circumstances and deliver on our region's unlimited potential.

The region's clean energy sector could be at the forefront of renewing the economy post-pandemic, leading the charge for a green recovery, and accelerating the transition to a zero-carbon economy.





## Our Actions

In order to realise our ambitions for the region, we need to put in place targeted actions which bring together expertise and emerging technologies across different disciplines to provide solutions and clean growth opportunities.

Norfolk and Suffolk have big ambitions. Working together, we know we can meet the challenges we face and move forward towards a strong and resilient future as the UK's clean growth region.

### Business Environment:

#### Creating the right environment for clean growth companies to thrive.

Collectively we are striving to increase the number of businesses growing and scaling up. Our actions will support businesses to become more sustainable and productive, giving the help needed to expand market access and attract inward investment.

There is a strong business environment in Norfolk and Suffolk and strengthened commitment from our business networks to collaborate with one another to support recovery. These include:



Sheringham Shoal

- ❖ The East of England Energy Group (EEEGR) which represents more than 300 members across the region, ranging from energy producers to supply chain companies. EEEGR is a key voice for the sector, putting the region and its expertise on the radar of major international players and influential politicians at regional and national levels.
- ❖ Connected Innovation is a new programme which is linking up all of the innovation centres across Norfolk and Suffolk, such as OrbisEnergy and Hethel Engineering Centre, to enhance business communication and collaboration and improve supply chain connections.

- ❖ Hydrogen East, bringing together interested parties and key stakeholders to raise awareness of existing and potential H2 opportunities.
- ❖ New Anglia Growth Hub provides business advice, access to finance, events, links, training, networking & learning to help enterprises in Norfolk & Suffolk grow.
- ❖ NAAME is a 300 strong network of manufacturing and engineering businesses with regional manufacturing groups across Norfolk and Suffolk.

#### Local partners will work together to:

- ❖ Provide industry leadership that drives actions and takes advantage of the opportunities that exist within and across clean energy through the All Energy Industry Council.
- ❖ Sharpen the high-quality business support offer to ensure it meets the changing needs of businesses adapting to new ways of working and new technology.
- ❖ Create a connected all energy supply chain, delivering programmes that support local SMEs and the wider business base through initiatives such as:
  - Increasing UK content in the offshore wind supply chain, working with developers and local businesses to make best use of the Offshore Wind Growth Partnership.
  - Delivering local supply chain opportunities linked to Sizewell C work packages for businesses to bid for and access. Partner with the National Academy for Nuclear (NSAN) and West Suffolk College to provide training for companies moving into the nuclear supply chain.
  - Work with partners such as the ORE Catapult to ensure businesses in Norfolk and Suffolk can continue to benefit from programmes such as Fit for Offshore Renewables, which saw the first cohort from the region announced in 2020.
- Support businesses in Norfolk and Suffolk to realise opportunities arising from a 'whole energy system' approach, enabling them to employ their capabilities and win contracts across the energy sector.
- ❖ Develop and deploy a new branding and marketing to consolidate the region's position as a world leader in energy, to maximise its visibility to Government and investors and enable it to compete effectively with established locations in national and international markets.
- ❖ Assist offshore wind supply chain companies in Norfolk and Suffolk to take advantage of export opportunities in major offshore wind projects globally, such as Coastal Virginia Offshore Wind (CVOW) in the US, establishing links between the partners, businesses, academic institutions, and business support associations to facilitate and develop investment and trading opportunities.
- ❖ Continue to support the delivery of the existing sector deals and engage with the new North Sea Transition Deal, making the case for Norfolk and Suffolk to pilot a Transition Programme which supports businesses in the supply chain to make the transition to cleaner forms of energy.

- ❖ Deliver and attend a strong programme of events, projects, and activities, working collaboratively with an array of partners across the region to demonstrate clean growth opportunities and raise the profile of Norfolk and Suffolk on a global stage.
- ❖ Continue to expand OrbisEnergy's scope from offshore renewables to 'clean energy', delivering an ambitious innovation and growth programme focussing on supply chain development, new technology solutions, investment in skills and talent, attracting investment, increasing global exports and supporting collaboration across industry to develop a shared all-energy workforce.



Sizewell B

## Infrastructure

### Setting the foundations for clean growth

Norfolk and Suffolk has the potential to be the UK leader in driving forward the UK's Green Industrial Revolution. With investment in key infrastructure around our major energy hubs either committed or in the pipeline the area is ready to scale up and support the clean growth road to recovery.

The Government's new National Infrastructure Strategy sets out a clear roadmap for enhanced private and public sector investment in critical infrastructure to enable future economic growth. Norfolk and Suffolk present a range of opportunities to help deliver this Strategy - boosting growth and productivity as part of the levelling up agenda, meeting the net zero targets, supporting private investment and accelerating delivery.

**"Supporting jobs and growth across the UK, in particular in post-industrial and coastal towns, the government's decarbonisation agenda will build the UK's capability in new green industries. Infrastructure investment in offshore wind capacity (40GW by 2030) and port infrastructure will create jobs in coastal communities. Further investment in Carbon Capture and Storage and in low carbon hydrogen will drive economic activity in post-industrial towns."**

*[National Infrastructure Strategy November 2020]*

As highlighted in the Local Industrial Strategy for Norfolk and Suffolk, boosting infrastructure enables success. The overarching aim is delivering integrated infrastructure to enable productivity gains and clean growth and to create places that people want to live and work. There is a commitment by partners to work together with a focus on;

- ❖ Delivering an integrated approach to infrastructure and inter-regional connectivity to maximise clean growth impacts locally and for UK plc.
- ❖ The right mix of sustainable, energy efficient, intelligent homes, commercial space and communities that are fit for the future.
- ❖ Developing exemplar low carbon energy generation, networks and storage which benefit local businesses and communities.

Norfolk and Suffolk has the potential to be the UK leader in driving forward the UK's Green Industrial Revolution.

Local partners will work together to deliver game changing infrastructure projects which will transform the region's connectivity and reinforce its reputation as a hub for the energy sector.

- ❖ The £120 million **Great Yarmouth Third River Crossing** to link the A47 and the Port and Enterprise Zones. The bridge will maximise investment, regeneration, and economic growth of the town, directly supporting the energy sector. The plans have been given the go ahead by Government and the bridge is expected to be operational by early 2023.
- ❖ **Gull Wing Third River Crossing**. Construction on the Gull Wing Third River Crossing in Lowestoft has now started following final approval by Government and £79.39 million investment from the Department of Transport.
- ❖ Transformational project to develop an **Operations and Maintenance Campus at the Port of Great Yarmouth**, creating 650 new jobs and ensuring the right infrastructure is in place to maximise the opportunity of large scale offshore projects including the construction and assembly of new larger wind farms or the decommissioning of old oil and gas platforms. New Anglia LEP invested £6m as part of the Government's Getting Building Fund.
- ❖ **Sizewell C** nuclear new build, which is expected to meet the 7% of the UK's energy needs and inject up to £200 million into the economy during peak construction. This project will seek approval in 2021-22 and provide extensive opportunities for the entire supply chain.



Aerial view of Great Yarmouth port - credit Mike Page



Aerial CGI of Sizewell C

Looking ahead, the region has ambitious plans for transformational projects including:

- ❖ The development of an **energy business incubator in Great Yarmouth** to nurture and support the clean growth businesses and entrepreneurs of the future.
- ❖ Bringing together a cluster of clean energy businesses, OrbisEnergy and the Port to maximise the opportunities of this growing sector, the development **Power Park in Lowestoft** sets a clear pathway and ambition for growth.
- ❖ An **integrated gas/hydrogen hub** at Bacton Gas Terminal, taking forward ground-breaking new technologies which will transform the site's contribution to Net Zero and extending its life by decades.
- ❖ A new **Energy Campus concept** to be developed focussed on clean energy - nuclear, hydrogen etc. for the Leiston/Sizewell area to boost supply chain, skills, inward investment and innovation opportunities.

Local partners will work together to deliver game changing infrastructure projects which will transform the region's connectivity and reinforce its reputation as a hub for the energy sector.



## Skills

### A highly skilled and diverse workforce

Local partners have a clear shared vision to drive low carbon, inclusive economic growth and improve employment and education opportunities for Norfolk and Suffolk. The significant low carbon infrastructure projects in the region have a huge potential to create a lasting skills, education and employment legacy.

The projects will all require a significant workforce and a multitude of skills at various levels. This provides us with an opportunity to increase both the employment and skills levels of our community and ultimately help us to raise relatively low productivity levels – a consistent challenge for our economy in recent years.

Due to the visibility, significance and scale of opportunities in New Anglia they can be used as a powerful catalyst to inspire and raise the aspiration and achievement levels of our young people. With additional investment, in our local skills and training offer, we will provide facilities that will deliver the required skills and competencies, at a range of levels, ensuring locally we are creating wide and deep, relevantly, skilled talent pools that are ready to take up the opportunities that the growth in the energy sector presents.

By creating these new competencies and capabilities and then embedding these into our local supply chain businesses and workforce, raising standards to those required by the energy sector we will be enabling our local businesses to grow and move into new markets. Local partners will work together to:

- Work with Government and partners to secure an **Institute of Technology** in the region which builds on our strengths and meets the increasing need for higher level technical skills in key areas such as energy, engineering and manufacturing’.
- Engage with **Productivity East** at the University of East Anglia, a new regional hub for engineering, technology management. Explore connections with the new institute which can provide skilled engineers for the energy workforce.
- Continue to work with EEEGR’s **Skills for Energy** programme which focuses on inspiring and delivering skilled people to the industry for long-term careers and ensuring the existing workforce continues to meet the industry’s needs, now and into the future.
- Ensure the successful delivery of the East Coast College second phase of **Offshore Wind Skills Centre** following the funding boost, which will support new entrants in the sector, as well as supporting internal progression for existing staff through replacement posts.
- Explore connections and collaboration with NAAME’s **Talent Sharing Platform**, a B2B platform designed to make the supply and demand for workforce visible to users, to connect businesses with matching needs and enable discussions.
- Support anticipatory investment into Post 16 education to de risk investment in delivering new curriculum ahead of evidenced articulated employer demand. To lobby for the reallocation of existing funds, such as, Apprenticeship Levy, to facilitate this investment.
- Identify core competencies to be delivered at a foundation level across all of our Post 16 education that ensures we are building a pipeline of foundationally competent learners ready to take that next step into specific higher level training alongside those already in the labour market that are upskilling or reskilling.
- Develop an approach to combat skills shortages and gaps whilst avoiding the risk of duplication through the provision of regional statements of intent supported with credible labour market information, such as Technical Skills Legacy Study, which recognise the specialisms required locally whilst identifying their national contribution.
- Reframe and rebrand STEM inspiration – using the high awareness of climate change issues within the target inspirational audience of 10 – 18 year olds reframe STEM inspiration under low carbon/clean growth, therefore, increasing reach and support articulated industry targets on inclusivity and diversity.

Local partners have a clear shared vision to drive low carbon, inclusive economic growth and improve employment and education opportunities for Norfolk and Suffolk

## Innovation

### Driving technological change and clean growth through innovation

Innovation is critical to securing the sustainable supply, distribution and supply of energy and driving the transition to Net Zero.

In the offshore wind sector, the development of ever larger infrastructure and technology which makes generation more productive has unleashed the potential of offshore wind to revolutionise the energy mix. New and innovative energy technologies are providing opportunities for the reuse and repurposing of gas assets for the production of hydrogen, carbon capture and storage, offshore desalination and battery storage. There is a real opportunity for Norfolk and Suffolk to become a ‘test and demonstration zone’, highlighting its national and global value.

As the region explores the opportunities for innovative new technology, we are taking a ‘whole systems approach’, thinking of innovation not as one technology choice versus another, or old technologies for new, but transforming the whole system with a holistic approach to energy production, transmission, distribution and consumption that will provide a cleaner, decarbonised, integrated energy system that offers energy security and smarter connectivity with greater flexibility, reliability and balance between generation and consumption.

Local partners have been working hard to create the right conditions to enable businesses to innovate. Measures include the introduction of a new integrated offer and programmes of activity to stimulate innovation and collaboration:

- Connecting up innovation centres and assets to open up access and encourage cross sector innovation, through the **Connected Innovation Programme**.
- Developing a **peer mentoring support programme**, which works with existing providers to enable businesses to access support for expert support when seeking investment for innovation.
- Promoting a £2 million **New Anglia Growth Through Innovation Fund** to undertake research and development or innovation projects that supports growth and helps businesses to diversify or develop new products.
- Developing new collaborative projects, working with the LEP’s Innovation Board, Industry Councils and partners such as Catapults, Innovate UK, CEFAS, UEA and key research bodies to progress leading activities around marine science, climate innovation and renewable energy.

Local partners have been working hard to create the right conditions to enable businesses to innovate.

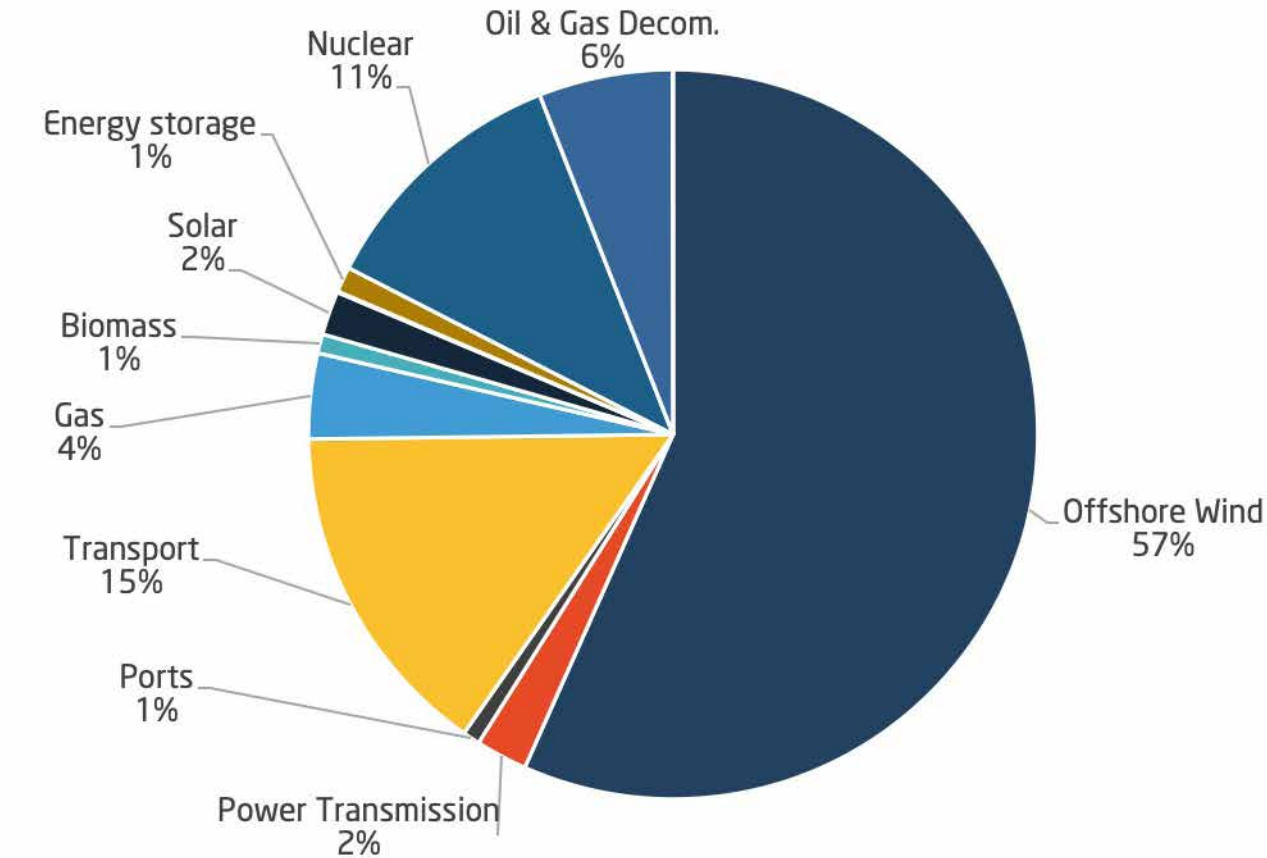
Looking ahead, local partners are committed to:

- Forging relationships with world class research and innovation organisations nationally and internationally, expanding our reach to maximise on opportunities through research, technology and innovation programmes that will build on the region's ambitious sustainable clean growth agendas.
- Continuing to grow and raise the profile the region's expertise in marine science, working to connect partners in energy, aquaculture and maritime to drive innovation and investment through initiatives like Sunrise Coast and the LEP's Innovation Board.
- Supporting Hydrogen East to identify options to deliver a viable route map for Norfolk and Suffolk to become a leading 'hydrogen region'.
- Developing the next generation of innovation infrastructure in our business incubation hubs, such as OrbisEnergy, stimulating innovation and connectivity across the supply chain through installing collaboration suites.

- Championing and support the ORE Catapult's plans to develop an Energy Systems Integration Centre of Excellence, bringing together industry partners, stakeholders, academia and regional governance to identify, prioritise and deliver projects that ensure the energy demands of today are met, whilst focussing and delivering on the innovation, technology and consumer requirements of the future.
- Working with EDF to support plans to develop a Hydrogen and Direct Air Capture demonstrator at Sizewell, ensuring that interested companies from Norfolk and Suffolk can engage with the opportunities presented by this new technology which has the potential to supply carbon neutral fuel for the construction of Sizewell C, plus meet the requirements of local authorities, ports, industry, and local bus and rail transport.

**Drive Norfolk and Suffolk to become a leading 'hydrogen region'**

## Investment Forecasts



**Note:** No forecast investment in new hydrogen and direct air-capture plants is recognised. This is largely due to a lack of data for an emerging technology, and planned Government investment to support R&D and Demonstration projects.

Sector	2050 Investment Forecast (£ millions)
Offshore Wind	£78,510
Power Transmission	£3,171
Ports	£1,061
Transport	£20,876
Gas	£5,254
Biomass	£1,176
Solar	£2,684
Onshore Wind	£64
Hydrogen production	£nil
Energy storage	£1,559
Nuclear	£15,926
CCS (incl. DAC)	£nil
Oil & Gas Decom.	£8,226
Oil & Gas	£34
<b>TOTAL</b>	<b>£138,541</b>

*Credit to Opergy Group*



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**NEWANGLIA**

Local Enterprise Partnership  
for Norfolk and Suffolk

