Offshore Wind in East Anglia
East Anglia

- A region full of energy and an energy powerhouse
- at the heart of the world’s largest market for offshore wind
- the Southern North Sea is the UK’s gas capital
- a hub for new nuclear in Suffolk and North Essex
- a future hub for green hydrogen production and servicing
52% of UK operational fleet off East Anglia and growing

235 turbines generating 436 MW

Leading the way on Energy from Waste & biomethane injection

140 MW battery storage projects granted

Southern North Sea conditions ripe for test & demo

55 projects generating 572 MW

1.2 GW Sizewell B powering c.8% UK homes in 2018

150 platforms

supplying 30% of UK natural gas

1 gas fired power station

Europe’s largest potential CO2 storage network

Could East Anglia be at the centre of the UK’s green gas revolution?

Sources: Opergy Ltd., EEEGR, Renewable UK, BEIS Renewable Energy Planning Database (Sept 2019)
East Anglia
A Clean All-Energy Region

Over **800** businesses and **11,800** employees in offshore energy

**£59.4 billion** capital investment in energy projects across the **East of England** by **2040**

**£1.3 billion** per year Offshore Wind O&M opportunities by **2025**

Source: BEIS, Office for National Statistics, Opergy Ltd., 4C Offshore
Offshore Wind in 2019
A great year for East Anglia!

- East Anglia One
  - 714MW offshore wind farm started offshore construction
  - £10m Operations Base opened, supporting local jobs

- Four (of seven) License Extensions
  Dudgeon, Sheringham Shoal, Greater Gabbard, Galloper

- Sector Deal launched in Lowestoft!

- £11.4m Energy Skills Centre opened in Lowestoft training tomorrow’s engineers.

- ORE Catapult’s East Anglia office opened at OrbisEnergy, Lowestoft.

- Launched new All-Energy Industry Council
UK Offshore Wind Sector Deal
Launched in Lowestoft

Offshore Wind Sector Deal launched in Lowestoft (March 2019)

Energy Minister Roundtable & Launch of Offshore Wind Cluster Brochure (March 2019)

All-Energy Industry Council Launched (May 2019)
East Anglia
One connected region.

Industry
- Developers
- Operators
- Supply Chain
- Ports / Maritime
- Universities & Colleges

Offshore Wind Industry Council

Renewable UK National Delivery & Coordination

Offshore Wind SIG Industry Engagement

All Energy Industry Council
Regional Strategy & Leadership

Central Government
- Policy
- Investment Framework
- Regulation

EEEGR Special Interest Groups
- Decommissioning & Reuse SIG
- Marine Science & Technology SIG
- SNS Rejuvenation SIG

East Anglia’s Offshore Wind Cluster

Local Government

New Anglia LEP

New Anglia Skills Advisory Panel

New Anglia Innovation Board

East of England Energy Zone (Steering Group)

EEEGR (Steering Group)

East Anglia’s Offshore Wind Cluster

East Anglia’s Offshore Wind Cluster
Supply Chain Capability

East Anglia’s ‘All Energy’ Supply Chain covers the following industry sectors:

- Offshore Oil & Gas (Exploration, Production & Decommissioning)
- Offshore Wind
- Nuclear
- Wave & Tidal
- Energy Storage
- Solar
- Bio-Energy (Bio-Fuels, Biomass)
- Hydrogen
- Transmission & Distribution
- Carbon Capture & Storage
Offshore Wind Supply Chain Capability Directory

- Over 2,000 companies across the European supply chain mapped
- Developed through collaboration across Belgium, Holland, Germany, Denmark and East/South East UK.
- Consistent classification system applied in 5 x key European Offshore Wind markets

www.inn2power.eu/mapping
Supply Chain Collaboration

- Enabling Supply Chain Collaboration
- Industry Conferences & Exhibitions
- Meet the Buyer Events
- Inspiring the Next Generation
People & Skills

- Forecast creation of at least 6,150 new jobs by 2032 support offshore wind (600% growth on current levels)
- **Coastal Energy Internship**, started in the East. To date supporting 120 student placements
- £11.4m **Energy Skills Centre** now open
- **East of England Offshore Wind Skills Centre** supporting re-skilling and transition training
- £14m invested in three new **Digital Skills Centres**
- £7.4m **Productivity East** centre at UEA as a new hub for engineering and technology.
- Industry-funded **STEM Hub** launched backed by Equinor, ScottishPower Renewables, Vattenfall, UEA and Opergy.
- EEEGR’s leading **Skills for Energy** programme including its **Energy Skills Foundation Programme** and education support
Ideas & Innovation

- **Offshore Renewable Energy Catapult** opens new East Anglia office
- Innovation hub **OrbisEnergy** celebrates 11yrs
- **Cefas** (UK Government marine science body) developing brand new £26m marine science campus in Lowestoft
- £29m **Sustainable Energy Coast R&D** bid to Government leveraging combined strengths of UEA, Cefas, ORE Catapult and EEEGR
- **Inn2POWER** – innovation through collaboration across UK, Netherlands, Belgium, Germany and Denmark.

**OrbisEnergy**

- 11 years supporting offshore renewable energy innovation
- **180** tenants supported
- **£5.1m** invested in more than **180** small business R&D projects
- **1,200** new jobs created since 2008
- **£7bn** regional investment leveraged in businesses, projects, and infrastructure.
Business Space & Support

- A joined-up collaborative region.
- Businesses committed to the region investing in skills and new facilities.
- The most successful Enterprise Zone in the country.

Energy Enterprise Zones
Seven sites across Great Yarmouth, Lowestoft, and North Norfolk

- 1,806 new jobs
- 63 new businesses
- £51m capital investment
- 54,455 sqm new floorspace
Supply Chain Strengths

• Project Management
• Assembly & Installation
• Operations & Maintenance
• Port & Logistics Capability
• Subsea Technology

• Education & Skills Development
• Innovation & Collaboration
Offshore wind is already a major international opportunity for us all. Inward investment and Export.

East Anglia is already building strategic links with key European and Global offshore wind markets.

• East Anglian business involved in almost every wind farm project around the world.
• Collaborative R&D programmes with Germany, Denmark, Norway, Belgium, and the Netherlands.
• Regional partnerships with Virginia, Massachusetts and Germany,
• Delegations from Europe, United States, Taiwan, Japan, China and South Korea.
Offshore wind development is the major focus of the UK’s clean energy plans.

More installed capacity than any other country.

The East Coast is the single largest focus in the UK Continental Shelf.

- **8.5GW** operating wind farms
- **3.72GW** wind farms under construction
- **10+GW** wind farms with planning permission or in the planning process

Suggested capacity targeted by 2030 - **40GW**

Source: RenewableUK
The East is home to more than 52% of the UK’s operating fleet.

It also has one of the UK’s largest pipelines for new projects, forecasting £30bn investment by 2040.

Close proximity to areas 1&2 of the Round 4 development sites.
What if we didn’t sell electricity?

We can use offshore renewables to:
• produce clean water, through offshore desalination?!
• produce hydrogen, using existing offshore infrastructure for transmission?
• do something else?
Offshore wind operators are developing projects for green hydrogen production through electrolysis.

Norfolk & Suffolk are currently exploring the development of a hydrogen cluster, bringing together the region’s natural gas and offshore wind sectors.

Source: IRENA, 2019
Where next for our region...?

- Continued delivery of Offshore Wind
- Clean Energy will be a major contributor to UK’s and East Anglia’s ambitions to move to ‘net-zero’
- ‘Energy White Paper’ due in Q1 2020 focussing on Net-Zero, and due to confirm 40GW target

New Technologies

Clean Energy in East Anglia is opening a range of new technology areas and markets, including:

- Green Hydrogen from renewables & nuclear
- Carbon Capture & Storage in the SNS
- Natural Gas Reforming to Hydrogen (with CCS)
- Large-scale Battery & Energy Storage
- Desalination / Freshwater production
- Power-to-Gas, Gas-to-Wire
- ‘Co-Existence’ e.g. Seafood farming ‘Aqua-tech’