

WIND ENERGY RESEARCH @ Durham University



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The Wind Energy Group at Durham University is recognised as a leading academic wind energy research group in UK and globally, particularly within offshore wind energy.

The UK now has more offshore wind installed capacity than any other country in the world and our research is helping to ensure this sector is efficient and cost effective.

Our research spans all aspects of wind energy from the design of turbine blades and foundations, cable installation, power electronics, the reliability and condition monitoring of wind turbines, how turbines interact within wind fields and with the environment, as well as the wider supply chain and regulatory contexts of wind farms.

The research group involves researchers from several of the University's Departments including Engineering, Business School, Computer Science and social sciences.

We have strong research links with the Wind Energy Industry including a long-standing strategic partnership with **Ørsted** - the leading Offshore Wind Developer in the world, **Offshore Renewable Energy Catapult**, **Siemens-Gamesa**, **SMD**, **Cathie Associates**, **Lloyd's Register**, **Saipem** and **Roger Bullivant**. We are the innovation lead for **Energi Coast** – the North East Offshore Wind Energy Cluster and one of the founding partners of **Aura** – the Humber Cluster.

Key areas of research

Operations & Maintenance	Structures & Geotechnics	Grid Integration
Reliability Analysis	Foundations and Anchors	Reliability Modelling
Condition Monitoring	Seabed Ploughing	Array Connection Topologies
O&M optimisation	Blade Fatigue Testing	Power Electronics
Data Mining	Prototype Turbine Geometries	Integration and interaction with power grid and energy storage

Aerodynamics & Control	Supply chain & Regulation
Blade Design and testing	Supply chain management
Aerodynamics and Wind Tunnel testing	International offshore / marine law
Wind Farm Control and optimisation	Community energy and attitudes

Key Projects

EPSRC Prosperity Partnership: A New Partnership in Offshore Wind: A £7.6 million partnership with Ørsted, Siemens Gamesa, Sheffield and Hull Universities to identify and break-down technical, operational and economic barriers to reducing the cost of offshore wind energy.

Aura CDT: Fully funded PhDs in Offshore Wind Energy and the Environment.

WindAfrica: Developing performance-based design for foundation systems of wind turbines in unsaturated soils in Africa.

EPSRC Home-Offshore: Holistic Operation and Maintenance for Energy from Offshore Wind Farms. Developing a holistic approach to operation and maintenance in future offshore wind farms with turbines exceeding 10 MWs in range.

Find out more at www.durham.ac.uk/dei/research/wind/