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ETI announce £5 million project to reduce cost of electricity from offshore wind generation

A project to develop and demonstrate a groundbreaking monitoring system, which could reduce the cost of generating electricity from offshore wind farms, has been launched by the Energy Technologies Institute (ETI).

The £5 million condition monitoring project is being led by UK-based wind turbine blade monitoring specialists Insensys (recently acquired by Moog) in partnership with EDF Energy, E.ON, Romax, SeeByte and Strathclyde University.

The consortium will develop and demonstrate advanced systems to monitor the condition and performance of turbines and predict future maintenance requirements for key components so they can be corrected before expensive damage occurs.

Systems will be installed on onshore wind turbines and tested for 18 months with a further year of tests planned for offshore wind turbines, to demonstrate the benefits and savings.

It is estimated that increased output, through reduced downtime, and reduced maintenance costs, could result in a benefit of up to £50,000 per turbine, per year.

ETI Chief Executive Dr David Clarke said: "Offshore Wind has huge potential to reduce UK carbon emissions and increase security of energy supply. However, barriers still exist before it can make a significant contribution to the UK's energy demands.

"One of the main barriers is the higher operation and maintenance costs due to the challenges associated with operating offshore.

"If turbines fail they can be difficult and costly to repair which is why it is important to spot potential damage or performance deterioration as early as possible."

“The ETI has brought together the best expertise to develop a system to monitor the condition of wind turbines which should increase their availability and lead to lower generation costs.

“The project will develop accurate models for predicting potential damage and fatigue to turbines providing early warnings and identifying the causes of possible component failures before expensive repairs are needed or the turbine fails. It will also aim to identify the causes of fatigue, which should allow early action to be taken to increase reliability.”

Insensys CEO Dr. Toby King added: “Energy generated from onshore wind turbines is now competitively priced with fossil fuels, but offshore wind is not there yet.”

“We believe that this project will increase the output and reliability of wind turbines by detecting the causes of component damage and enabling them to be corrected, before the damage occurs. For example, many turbines today operate with blade imbalances which can rapidly lead to expensive gearbox and bearing damage, and yet are easy to correct.”

“This technology will have the potential to significantly reduce the cost of energy from offshore wind turbines which is a very significant step towards making offshore wind competitive.”

The turbine conditioning monitoring system will cover all aspects of a turbine including the blades, bearings, gearbox, generator, power electronics and support structures.

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Notes to Editors.

- The Energy Technologies Institute is a UK based company formed from global industries and the UK Government. The ETI brings together projects and partnerships that create affordable, reliable, clean energy for heat, power and transport.
- The ETI's six private members are BP, Caterpillar, EDF Energy, E.ON, Rolls-Royce and Shell. The UK Government has committed to match support for four further Members. The ETI's public funds are received from the Department for Business Innovation and Skills through the Technology Strategy Board and the Engineering and Physical Sciences Research Council (EPSRC). These organisations, together with the Department for Energy and Climate Change (DECC), are engaged directly in the ETI's strategy and programme development.
- The ETI will demonstrate technologies, develop knowledge, skills and supply-chains, inform the development of regulation, standards and policy, and so accelerate the deployment of affordable, secure low-carbon energy systems from 2020 to 2050.
- About the Energy Technologies Institute (ETI): Plans for the ETI were first revealed in the 2006 Budget by the then Chancellor of the Exchequer, Gordon Brown. It operates as a 50:50 public/private partnership. The ETI is based at Loughborough University Science Park and hosted by a consortium comprising Birmingham, Loughborough and Nottingham Universities.

- In selecting projects for funding, the ETI aims to achieve a number of key objectives, including demonstrating energy technologies and systems, improving energy usage, efficiency, supply and generation and developing knowledge, and supply chains.
- Insensys Limited, IS PART (a subsidiary) of Moog Inc., is the world leader in Wind Turbine Blade Monitoring solutions. Based in Southampton, UK, Insensys supplies blade monitoring systems to 80% of the world's leading turbine manufacturers and many more owners and operators, to help increase energy output and reduce maintenance costs.
- Moog Industrial Group designs and manufactures high performance motion control solutions combining electric, hydraulic, and hybrid technologies with expert consultative support for OEMs, wind farm operators and integrators in the wind power market. We help performance-driven companies design and develop their next-generation turbines. With 33 operations worldwide, Moog Inc. (NYSE: MOG.A and MOG.B), achieved in 2008 net sales of USD 1.902 billion.
- Romax Technology Limited, is the world's leading independent design and technical solutions provider for Wind Turbine drivetrains, gearboxes and bearings. Based in Nottingham, UK, Romax designed gearboxes from 750kW up to 3MW have been installed in turbines both onshore and offshore worldwide.
- SeeByte Ltd, is an Edinburgh based software Product Company founded at the end of 2001. SeeByte's vision is to radically improve the ways that automated systems and their operators can combine, interpret and use large quantities of sensor derived data. Building a single integrated picture of events turns this data into actionable information, enhancing situational awareness and enabling better and more informed decisions to be made.

www.energytechnologies.co.uk

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