The Engineering Integrity Society

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4th Durability & Fatigue Advances in Wind, Wave and Tidal Energy

Institute for Energy Systems
University of Edinburgh
22 April 2015

THE UNIVERSITY of EDINBURGH
School of Engineering

Building on events in 2006, 2008 and 2010, this 4th EIS meeting aims to highlight recent advances in fatigue and durability assessment for renewable energy structures. The relevance of these events relates to the continual increase of energy supply from renewable sources in the UK, Europe and worldwide. On 17th August 2014 a record high of 22% of the UK's electricity supply was generated by wind. In other EU countries the record is approximately double that. Building on this demand the size of the individual offshore prototype production machines is now exceeding the 10MW rated energy. Almost at the same time, secured funding for the 6MW first phase of the world's largest commercial tidal energy production in the north of Scotland was announced.

These new challenges require enhanced design for integrity and reliability that is based on established and new practices. The 4th EIS WWT conference aims to provide a platform for the discussion of current technological developments in this area. The event speakers are drawn from companies in this sector, as well as from experienced professionals and academic researchers working with emerging technologies in theoretical assessment of renewable structures.

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Programme

9.00am	**Registration, Tea and Coffee**
9.20am	**Introduction**
9.30am	**Flow control for enhanced durability and fatigue endurance of tidal turbines** **Dr Ignazio Viola, University of Edinburgh**
10.00am	**Dual-Axis Fatigue Testing of Large Wind Turbine Blades** **Dr Kirsten Dyer, NAREC**
10.30am	**Advances in Component Reliability Testing for Offshore Renewable Energy** **Dr Philipp Thies, University of Exeter**
11.00am	**Tea and Coffee**
11.30am	**Validation of Loads and Structural Calculations for Wave and Tidal energy converters** **Ed Mackay, DNV GL - Energy**
12.00pm	**Tidal Foundation Selection** **Rory Sinclair, Ramboll**
12.30pm	**Lunch and Exhibition**
1.30pm	**The role of Structural Redundancy for planning Offshore and Marine Renewable Energy Inspection Strategies** **Prof Feargal Brennan, University of Cranfield**
2.00pm	**Remote monitoring of in-service bolt tension** **Prof Jarek Rosinski, Transmission Dynamics**
2.30pm	**Mooring design options for high-intensity typhoon conditions – A risk based investigation for wave energy in China** **Dr Sarah Crowley, University of Exeter**
3.00pm	**Tea and Coffee**
3.30pm	**The SLIC Project – Towards new Fatigue Design Guidance & Standards for Offshore Wind** **Isaac Tavares, Centrica**
4.00pm	**Offshore Wind Structures - Gambling With Grout: Worth the Risk?** **Dr Chris Golightly, Geotechnical and Engineering Geology Consultant**
4.30pm	**The use of fibre-optic sensors for in-service structural monitoring of tidal energy turbines** **Robert Knapp, Epsilon Optics Ltd**
5 pm	**Closing Comments**

Booking Form

	EIS Member	Non EIS Member
Delegate	£100+VAT	£125+VAT
Student/Apprentice	£25+VAT	
	UK	Rest of the World
Personal Membership of the EIS	£25 per year	£30 per year
I enclose a cheque for £_____ made payable to the Engineering Integrity Society. Payment can also be made by BACS.		
Name:		
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Any Special Dietary Requirements		

Please return completed forms to info@e-i-s.org.uk or send to the following address:
Engineering Integrity Society, 17 Harrier Close, Cottesmore, Rutland, LE15 7BT, UK
Telephone: +44(0)1572 811315
Email: info@e-i-s.org.uk

The Engineering Integrity Society is an independent not-for-profit organisation which aims to inspire all engineers, both experienced and newly qualified, across a broad spectrum of technologies. The Society is committed to promoting events and publications, providing a forum for engineers to discuss present industrial needs, new technologies and to stimulate both company and personal development.

The annual subscription rates are £25 for UK residents and £30 for non-UK residents. Upon joining the Society you will also have the additional advantages of preferential attendance rates at EIS events, together with selected events held by some of the associated organisations. In addition you will have access to CDs containing archived copies of EIS presentations.

About Institute for Energy Systems

The Institute for Energy Systems (IES) delivers world leading research in low carbon energy systems, technology and policy. Within IES we have academic expertise in resource modelling and measurement, hydrodynamics, aerodynamics, computational fluid dynamics, thermodynamics, electromagnetics, power electronics, control, power systems analysis and life-cycle analysis.

IES has developed unique world class test facilities for wave and tidal energy, in particular the FloWave Combined Wave and Current Test Tank.

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