



The Engineering Integrity Society

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.



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:		
Company:		
Address:		
Telephone:		
Email:		
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.

The **ENGINEERING INTEGRITY SOCIETY** is pleased to acknowledge the support of the following organisations:

AC Soft	M&P International	Sensors UK
Bruel & Kjaer	Meggitt	Servotest
CaTs ³	Micro-Epsilon	Siemens
Data Physics UK	Millbrook	Smart Fibres
Datron Technology	MIRA	Star Hydraulics
Gantner Instrumentation	Moog	Techni Measure
GOM	MTS	THP Systems
HBM	Muller-BBM	Tiab Ltd
HGL Dynamics	Nprime	TRaC
Instron	PDS Projects Ltd	Tranmission Dynamics
Interface Force Measurements	Polytec Ltd	Variohm
Kemo	RAL Space	Yokogawa
Kistler	Safe Technology	Zwick / Roell

