HYBRID MARINE
Power & Propulsion
CONFERENCE

RNLI Lifeboat College, Poole UK
6 to 8 October 2015

Hybrid Marine Conference brings together a group of experts to enable the professional sector to explore the possibilities of utilising hybrid power and propulsion systems.

The aim is to identify the potential of hybrid for wind farm support vessels, pilot boats, workboats, harbour service vessels, patrol craft, military and unmanned craft.

Hybrid Marine Conference is relevant to end-user organisations, operators, boat builders, engine manufacturers, engineers, naval architects and legislators.

The take away knowledge will identify opportunities and create affiliations that share engine data, battery capabilities and work cycles for potential hybrid solutions.

XALT® Energy

LEAD SPONSOR: US cell and battery manufacturer XALT Energy is at the forefront of the search for lighter, smaller, more efficient and more powerful energy solutions. Using the brightest engineering minds in cutting-edge facilities, XALT Energy help customers all over the world develop new energy storage applications and solutions based on proven lithium ion chemistry www.xaltenergy.com

BAE SYSTEMS HybriDrive PROPULSION SYSTEMS

SUPPORTER: BAE Systems HybriDrive is a provider of hybrid propulsion systems with technical experience in hybrid technology for transport applications. HybriDrive partners with manufacturers of marine engines to provide propulsion and auxiliary power systems www.hybridrive.com

torqeedo STARNBERG.GERMANY

SUPPORTER: Torqeedo Deep Blue Hybrid is a fully integrated scalable system, offering hybrid propulsion and complete onboard energy management. The serial production components are engineered to match each other, then tested in a complete system www.torqeedo.com

SSA The Voice Of The UK Marine Industry

SUPPORTER: SSA works alongside the UK Ministry of Defence naval procurement and research programmes. Also the Department of Energy & Climate Change as they take forward the UK Renewable Energy Strategy.

Feedback from Hybrid Marine Power & Propulsion Workshop - May 2015:

'I learnt so much about the opportunities and challenges' SM
'This has opened my eyes to the current state of the technolog(ies)' RC
'Technology learning content good - as well as application and future development' DB
'Very good and a real intro to the possibilities of these market sectors' AY
'The networking between proceedings was exceptional' AM

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Hybrid Marine Conference & Workshop – Attend for 2 or 3 days:
CONFERENCE 7 & 8 October 2015: £350 (2 day rate)
WORKSHOP 6 October + CONFERENCE 7 & 8 October 2015: £450 (3 day rate)

7 & 8 OCTOBER: Hybrid Marine Power & Propulsion – CONFERENCE

Focus on sub IMO / sub 24 metre Professional Sector – Topics include:

Evaluating Marine Hybrid Systems
Merits and disadvantages of serial and parallel hybrid systems

Integrating Innovative Propulsion with Hybrid
Connecting new propulsion technology with traditional engines and electric power

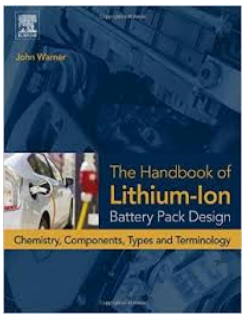
Naval Architecture & Boatyards
Adapting monohulls & catamarans to accommodate power storage & hybrid systems

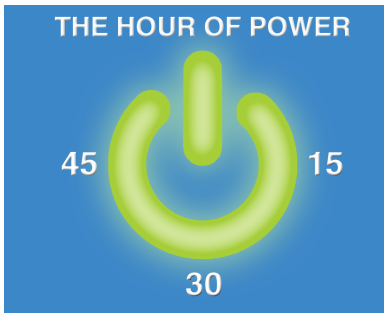
Safety & Electrical Engineering Standards
Class rules, guidelines and testing for large maritime battery systems

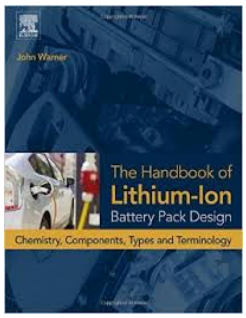
System Integration
Controller Area Network (CAN) from automotive applications meets NMEA2000

Next Generation Energy Storage & Charging
Investigating cells and battery technology including lead acid and lithium ion

Energy Conversion
Utilising shore power and onboard generation to create 'The Hour Of Power'







6 OCTOBER: Hybrid Marine Power & Propulsion - WORKSHOP DAY

The Hybrid Workshop focuses on 'The Hour Of Power' and next generation battery technology.

The objective is to identify commercially viable solutions to enhance conventional power systems.

The Hour Of Power concept has been well received by the marine industry. This enables vessels to run in and out of port for an hour on electric with battery power - then carry out open sea work on diesel power.

The Hybrid Workshop will examine innovative hybrid solutions to enable vessels to reduce emissions and improve fuel consumption whilst extending engine maintenance periods and engine life.

The Workshop will compare metrics to identify where lithium ion could integrate with diesel systems.

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Hybrid Marine Conference & Workshop includes:

Networking Lunch - Refreshments - Drinks Reception
Registration 08.30 / Start 09.00 / End 17.00

CONFERENCE & WORKSHOP LEAD: John Haynes - Managing Director, Shock Mitigation

Specialist hybrid workshops and conferences are based on building networks and accelerating knowledge transfer for the marine sector worldwide. The objective is to deliver clear information to end-users and manufacturers, by bringing together relevant subject matter expertise plus an independent overview of how this sector is rapidly changing.

John is an Associate Fellow of The Nautical Institute, Commercial Yachtmaster Ocean and Advanced Powerboat Instructor. Subject matter expertise includes 30 years professional sector training, consultancy and strategic product development. He writes specialist articles on future requirements and new technology for international media.

KEYNOTE SPEAKER: John Price - Managing Director, JMP Systems Engineering: *'Overview of innovation and regulation in the aerospace sector.'*

Other transport sectors are often regarded as being more innovative than the marine sector. It is important to see how they have achieved this and what 'maritime' can learn from the experiences in aerospace. This will highlight the relationship between innovation and regulation and consider why electrification and hybrid are key future technologies. John will illustrate his presentation, including recent examples from his experience with the Airbus Group and across aviation.

John was previously in charge of developing energy and propulsion technologies for a number of aviation projects, within the corporate research centre of Airbus Group. He is now an independent consultant. Current projects reflect a strong continued interest in Electric and Hybrid Electric vehicles, and also transfer of innovation and technology across transport sectors. In July 2015 he was in France for the cross channel flight record by the electric / battery E-Fan aircraft, and will be able to give his view on this experience.

Dr John T. Warner - Vice President, XALT Energy: *'Applying industry best practices and lessons learned from automotive and land transport to the marine hybrid and electric market.'*

Modern lithium-ion batteries were first commercially introduced in 1991. Through integrating "best practices" from the automotive and other manufacturing sectors as well as by taking advantage of emerging industry standardization the maritime sector can anticipate "riding the wave" of these technological innovations and cost reductions.

John is an experienced sales, product management and strategic marketing executive with over 25 years in the automotive and battery industries. He serves as the Chair for the Society of Automotive Engineers (SAE) Battery Size Standardization Committee. In May 2015 he published the book, "The Handbook of Lithium-Ion Battery Pack Design".

7 OCTOBER: Tour of new RNLI All-weather Lifeboat Centre (ALC)

Day One of the Hybrid Conference ends with an RNLI engineering led tour of the new ALC

In August 2015 the Royal National Lifeboat Institution (RNLI) opened its All-weather Lifeboat Centre (ALC).

This enables production, maintenance and refit of the all-weather lifeboat fleet to be performed in-house and under one roof for the first time in the RNLI's 191 year history.

The ALC facility brings together production for the next generation of Shannon class all-weather lifeboats, as well as providing a maintenance and refit facility for the existing Tamar and Severn class fleet.

The ALC combines the latest technology with practical design to ensure the most efficient production cycles.

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Graeme Hawksley - Managing Director, Hybrid Marine Ltd

'Innovative hybrid systems for small craft.'

Hybridisation of a craft is not as simple as swapping out the propulsion plant. The entire vessel and its operating requirements must be considered. For some craft, hybrids can offer many benefits; in other cases, installations may just add cost and complexity. This presentation will explain basic hybrid concepts and dispel a number of myths.

Graeme has an MSc in Microelectronics and has been in the electronics industry since the late 1970s. He has worked in the UK and USA in aviation, marine and silicon chip manufacturing. A UK government grant provided funding for research into the use of hybrid systems in small craft. Hybrid Marine has been manufacturing systems for 12 years.

David Adamiak - Senior Manager Business Development, BAE Systems HybriDrive

'Hybrid propulsion and auxiliary power systems for marine applications.'

Various sources of energy are available to power today's vessels. The question is which energy source best fits the vessel, duty cycle and environment to give efficient power where and when it's needed. Evaluation of energy sources, power generation and the delivery and distribution methods are examined for efficiencies and optimisation.

David graduated from the US Naval Academy in Annapolis and spent the majority of his military career flying tactical jet aircraft. Since joining BAE Systems, he has enjoyed a career opening new markets for hybrid electric propulsion. He holds a MSc in Electrical Engineering and manages a portfolio of over 300 patents in hybrid electric technology.

Christoph Ballin - Co-founder & CEO, Torqeedo Deep Blue

'Developing high-power integrated propulsion systems for serial production.'

Torqeedo Deep Blue hybrid power and propulsion for the professional sector is based around components of the proven and multiple innovation award-winning system for electric hybrid yachts. This can provide drive systems and supply the power on board. Renewable sources of energy can be integrated into the energy management system.

Christoph is responsible for the product strategy and brand development of Torqeedo. He studied business administration at the Otto-Friedrich University of Bamberg, where he gained a PhD with research into market models and market revolutions. Christoph worked for five years as a management consultant with McKinsey & Company.

Robert Young - Technical Lead for Marine Applications, XALT Energy

'The Hour Of Power - Energy storage systems implementing diesel / electric / battery solutions.'

A system sized for an hour of electric propulsion at ten knots could also be used for a much longer period of time with a lower power load. Examples include dynamic positioning and stemming the tide for loitering of commercial vessels and station keeping of military vessels. This type of usage could extend the life of diesel engines and reduce O&M costs.

Robert brings over a decade of high voltage lithium ion battery experience into the maritime environment. He has earned respect in various power and propulsion market places by building relationships and delivering results to ensure product success and long term sustainability. He is passionate about viable green technology for all transport sectors.

Dr. Wenzel Prochazka - Product Manager, Global Battery Management Team, AVL LIST

'Modelling and simulation of a virtual hybrid system for sub IMO vessel applications.'

Hybrid powertrains, based on diesel main engines, e-motors, batteries and other electrified propulsion or auxiliary components need careful system sizing to balance benefit and cost. Systems modelling in order to evaluate component sizing and hybrid functionalities of the differently sized components is therefore an important task. The presentation will give an overview about the use case of a sub IMO hybrid vessel being virtually hybridized within the AVL system modelling tool CRUISE M.

Wenzel is the product manager for battery system development at AVL. He has a PhD in modelling of ageing of lithium ion cells and has worked for AVL over the last 10 years in various positions. AVL is the worlds' largest privately owned and independent company for the development of powertrain systems.

Simon Patterson - CEO, MSP Technologies

'Designing lightweight, modular, scalable hybrid systems for marine applications.'

Advanced hybrid power management and storage systems integrate the latest advances in diesel engine technology, with state of the art power electronics and multiple format lithium based batteries. MSP technology enables hybrid systems to be lighter, smaller, quieter and significantly more efficient than conventional diesel-powered generator units. Besides delivering clean energy, to be commercially viable systems are designed to deliver a quick return on investment and extended lifecycle.

In addition to being founder and CEO of MSP Technologies, Simon built and designed systems for the Elektra, a series of Nigel Irons designed electric boats. From this concept, the Multi Source Power system was devised and over the last 6 years Simon has been refining a system to bring to market. As of last year MSP Technologies has been funded and developing and building it's prototype.

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Dr Davion Hill - Group Leader Energy & Materials Program, DNV GL

'Enhanced safety with hybrid power in the Offshore Oil & Gas Sector.'

DNV GL engaged with ABB, BG Group, Samsung Heavy Industries, Seacor Marine, and the University of Sao Paulo in a joint industry program (JIP) to take the next step toward hybrid power in the offshore oil & gas sector. Much of the existing body of work on hybrid power involves economic and emissions reduction benefits. This JIP is addressing benefits such as improvements in reliability, and the means for fully electric backup to add ride-through capability and mitigation barriers to a loss of position event.

Davion is President of NAATBatt International. He has developed testing programs and written standards on battery testing and safety, and led the development of DNV GL's Battery XT software. He is Principal Investigator for both of DNV GL's ARPA-e programs and has led forensic investigations for energy storage system fires and failures. He has authored or co-authored 30+ technical publications on batteries, including DNV GL's Draft Recommended Practice for battery testing and DNV GL Guideline for Large Maritime Battery Systems.

Julian Morgan - Managing Director KPM Marine

'Modular interior designs for reducing weight and improving fuel efficiency of vessels.'

Weight saving is critical to fuel saving in all forms of transportation. An efficient hull form and hybrid power system can be further enhanced by weight savings and innovative efficiencies throughout the vessel. The paper utilises 30 years of experience in design for manufacture and cost reduction for large multi national companies across varied sectors and applies lessons learned to the marine industry.

Julian holds Honours and Masters Degrees from Brunel and Warwick Universities. He was awarded a scholarship to research Mechatronics at Rhode Island University. He has worked for Phillips Research Laboratories, medical division and has consulted to organisations including Apple Computers, BAE Systems, Hewlett Packard and Psion. He has been awarded the Seawork Spirit Of Innovation award three times.

Robert Hayes - Naval Architect, Frazer-Nash Consultancy Ltd

'Reducing the Unknowns - Exploring the benefits of accurately predicting hull resistance.'

This presentation will look at how a systems engineering approach can be used throughout the design cycle of hybrid powered craft. With focus around the first crucial step in the design cycle which is predicting vessel resistance data, from which the configurations of hybrid systems can be optimised. In particular how data below 10 knots can be obtained. Using modelling techniques (CFD and in-house hydrodynamics code) can reduce the unknowns and bring about a more cost effective design by ensuring that appropriately sized hybrid systems are specified.

Robert graduated from Southampton University with an MEng in Ship Science. He has been involved with feasibility based concept design of hybrid boat propulsion both with Southampton University and CTruk Boats. He now leads up Frazer-Nash's hybrid technical approach where he is able to draw on company wide expertise and translate that into how it can be applied to solve marine hybrid problems.

Bernard Twomey - Global Head of Electrotechnical Systems, Lloyd's Register

'Risks associated with maritime battery installations and their mitigation'

The presentation will look at the risks associated with the installation of maritime battery systems and how those risks can be eliminated, or mitigated and managed and how Lloyd's Register is approaching the use of this technology to ensure the systems comply with the requirements of the Rules and Regulations.

Bernard Twomey is the Global Head of Electrotechnical System for LR and is a Fellow of the IET and IMarEST, he is also a Member of the IMechE and advisor to the UK MOD Naval Authority on Power and Propulsion. His background includes 12 years in the merchant navy before joining Lloyd's Register where he has responsibility for providing world-wide technical leadership in the maintenance of consistent standards and securing Lloyd's Register's role as a recognised technical leader within the Marine industry.

Further Presentations To Follow

MARITIME REPORTER AND ENGINEERING NEWS

Marine News

Media Partners

MarineLink.com

RIB & HSC HIGH SPEED CRAFT

For further information and registration contact Event Manager
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