



Hybrid Marine Power & Propulsion Workshop

Focus on sub IMO / sub 24 metre Professional Sector

The Grand Harbour - Southampton UK – 13 & 14 May 2015

Hybrid Marine Workshop 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 for wind farm support vessels, pilot boats, patrol craft, workboats, harbour service vessels and unmanned craft.

The Workshop is relevant to end-user organisations, boat owners, operators, boat builders, engine manufacturers, engineers and naval architects. The take away knowledge will identify opportunities and create affiliations that share engine data, battery capabilities and work cycles for potential hybrid solutions.

DAY 1 & DAY 2: Registration 08.30 / Start 09.00 / Coffee 10.30 – 11.00

Lunch 13.00 – 14.00 / Coffee 15.30 – 16.00 / End 17.00

DAY 1: Drinks reception sponsored by XALT Energy 17.00 – 19.00



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 diesel engines to provide propulsion and auxiliary power systems www.hybridrive.com

TORQUEEDO
STARNBERG, GERMANY

SUPPORTER: Torqeedo Deep Blue Hybrid is a fully integrated scalable system, offering hybrid propulsion and providing complete onboard energy management. All the components come from serial production and are engineered to match each other, then tested in a complete system before delivery www.torqueedo.com

WORKSHOP LEAD: John Haynes - Operations Director, Shock Mitigation

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 product development. He writes specialist articles on future requirements and new technology for international media including: Maritime Reporter, Marine Link, Marine News, Maritime Journal, Seaways, Ship & Boat International (RINA), Maritime Pilot Journal, Powerboat & RIB, Yachting Matters (Superyacht), Defence IQ. He is founder of the RIB & High Speed Craft Directory that brings together specialist boats and equipment for the sub IMO / sub 24 metre professional sector. Shock Mitigation workshops are based on building networks and accelerating knowledge transfer.

Captain Andrew Moll - Deputy Chief Inspector, Marine Accident Investigation Branch

Andrew joined the Royal Navy in 1978. He served in HMS COVENTRY during the Falklands Conflict in 1982. His career was largely sea-going, spent in destroyers and aircraft carriers. His commands included: the fast patrol boat SNV AL FULK, while on loan to the Omani Navy during the later stages of the Iran-Iraq war; the Type 42 destroyer, HMS YORK, in the Gulf on counter-narcotics operations; the Type 22 frigate, HMS CHATHAM, leading NATO's squadron in the Mediterranean and patrolling the Baltic. After 27 years of naval service Andrew joined the Marine Accident Investigation Branch in 2005 as Principal Inspector in charge of an MAIB investigation team. He assumed the role of Deputy Chief Inspector in 2010.

Graeme Hawksley - Managing Director, Hybrid Marine Ltd

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. In 2003 Hybrid Marine was born and has been manufacturing systems for 12 years. In 1993 Graeme sailed out of Portsmouth Harbour in his old 26' wooden sailing sloop. Four and a half years later he found himself in New Zealand. Graeme returned to the UK in 1998.

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 concepts and dispel a number of myths by addressing the following questions. What are the pros and cons of hybrids? How do we successfully implement the technology? What costs are involved and what premium can the market support? Is the technology mature enough?

Robert Young - Marine Lead / Technical Sales & Applications Engineer, XALT Energy

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

Battery management systems & lithium ion for marine applications

XALT Energy work with boat builders, naval architects and marine operators to analyse different workboat duty cycles. Engine management data can be matched to battery characteristics to develop the most efficient solutions. Onboard energy management systems are designed to ensure that battery systems operate at optimum performance. The objective is hybridizing and electrifying marine vessels to produce financial benefits and reduced emissions.

Alan Cartwright - Commercial Manager, Warsash Maritime Academy

Alan joined Warsash from the Port of London Authority (PLA) where, as Head of Marine Engineering, he developed, built and operated a range of innovative pilotage, harbour patrol and marine service vessels. Alan is recognised as an authority on small commercial vessel design, regulations and operations. Prior to joining the PLA, Alan enjoyed a 22 year career with the Royal Navy as a marine engineering officer. He served as Senior Engineer onboard the Royal Yacht Britannia from 1991 to 1994.

The Challenge of Designing New Vessels for the 21st Century

Port and city estuaries and rivers require a broad range of services including security patrols, surveillance, navigation and SAR assistance, safety at races and river functions, inspection of moorings and navigation lights, support to civil engineering projects, safe delivery of marine pilots and other officials. Ongoing commercial and environmental objectives include improving vessels fuel consumption and reducing emissions. Hybrid power and propulsion could be part of the solution for next generation vessels navigating city waterways, such as the River Thames, to reduce wash, noise, marine and air pollution.

Andy Page - Design & Project Manager, Alicat Workboats Ltd & South Boats IOW Ltd

Andy Page is a member of RINA and is responsible for oversight of all projects carried out by the Alicat and South Boats IOW team. In recent times both companies have enjoyed great success in producing high speed catamaran vessels for the construction and operation / maintenance of offshore windfarm installations.

Development of windfarm industry and how vessels are evolving

This session shares some of the experiences which small craft naval architects face everyday when working in the commercial marine sector. Class rules, safety, performance, cost and resources are relevant when considering innovative power and propulsion systems. The next challenge is to engineer a solution for hybrid technology which is first and foremost affordable and manageable in terms of physical size, weight and required long term maintenance.

David Adamiak - Senior Manager Business Development, BAE Systems HybriDrive

David graduated from the US Naval Academy in Annapolis, MD and spent the majority of his adult life flying tactical jet aircraft (like the F-4 Phantom) and leading US Marines. Since joining BAE Systems, he has enjoyed a career in business development, opening new markets for hybrid electric propulsion. He holds a Master of Science in Electrical Engineering and manages a portfolio of over 300 patents in hybrid electric propulsion technology

Hybrid propulsion & 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. Since no two vessels, routes or captains are alike, decisions can be based on data logging and analysis. The presentation explores how vessel's power management can be optimised with hybrid marine systems.

Joe LoGrasso - Director of Pack Engineering, XALT Energy

Joe joined XALT after a successful 30 year career at General Motors, including 22 years in development of advanced propulsion technology and energy storage systems for electric, hybrid, and fuel cell vehicles. Joe has a Bachelor degree in Electrical Engineering and Masters degrees in both Systems Engineering and Technology Management. He is a 32 year IEEE member and has served on the SAE Battery Standards Committee. Joe is a strong advocate of battery technology applications in the electrification of all transportation sectors.

Lessons learned from hybrid automotive & lithium ion technology

His experience in all aspects of battery engineering includes systems performance, design, battery safety, cell technology, product strategy, electronic controls & algorithms, and testing. He was a key contributor on the early GM electric drive programs including the EV1 Electric Vehicle, Precept and Autonomy Fuel Cell prototype vehicles, and most recently led GM's technology development of lithium ion batteries for GM's Stop-Start, Full Hybrid, Plug-in Hybrid, and Extended Range electric vehicle programs including the Chevy Volt & Opel Ampera. Extensive knowledge and expertise in electrical and systems engineering of battery products targeted for transport and grid applications have enabled XALT team members to develop innovative, safe and reliable products for the marine sector.

Eugen Maier & Andrew Mellard - MAN Engines

Eugen graduated from the UAS of Schweinfurt and joined MAN Engines in 2011. He is the Marine Area Sales Manager responsible for the UK marine engine market as well as the CIS countries – Australia, New Zealand and Japan. Andrew is General Manager Engines & Components for MAN Engines in the UK.

Planning for IMO Tier 3 Engine Room Design

With incoming emissions regulations in the coming year, propulsion systems will be undergoing changes and engine room design will have to adapt accordingly. Components, dimensions and layout options of the systems currently under development by MAN are detailed to provide an introduction to these new technologies.

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

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.

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. The innovative hybrid system can provide drive systems and supply the power required on board. The use of renewable sources of energy has also been integrated into the energy management system. Professional users of the hybrid system can travel silently and use environmentally friendly sources of energy in port and at lower operating speeds.

Simon McLoughlin - Director C-Fury

Simon is co-founder of C-Fury, a catamaran hydrofoil RIB manufacturer used in multiple applications including leisure, yacht tenders, commercial, and USV. Focus is on producing compact high capability craft up to 6 metres in length with good payload and excellent handling in varying sea states.

Innovative power and propulsion focussing on scalable solutions

Experience gained since launch shows that a new versatile powertrain is required to satisfy market demands, in particular for commercial daughter craft and yacht tenders, where a compact high thrust inboard diesel is demanded. Working with rotary diesel engine and ducted drive specialists C-Fury are evolving the Cyclone drive optimised for sub 6 metre craft. The modular system can easily be configured from 50Hp to 200Hp from common components. The modularity of the Cyclone drive lends itself to hybrid integration. Future developments will include 100Hp to 400Hp.

Adam Younger - Principal Naval Architect, Adam Younger Design

Adam Younger Design (AYD) was founded in 1989. Previously Adam worked as a Naval Architect in the design offices of Souter Shipyard and FBM Marine (formerly Fairey Marine) focussing on commercial craft and high performance boats. AYD has designed many specialist craft on a contract basis for boat builders worldwide. Designs include luxury tenders, high speed patrol craft, search and rescue craft and race winning powerboats.

Hybrid power and propulsion for Superyacht tenders

Superyacht tenders are designed to high standards and can incorporate unique features to meet the bespoke needs of owners. As diesel-electric hybrid systems are adopted by the mother vessel, Superyacht tenders have the opportunity to utilise hybrid power and propulsion to reduce noise and emissions around vessels in the luxury professional sector.

Alex Atkins - Director, Offshore Energy Solutions Ltd

Alex has considerable maritime experience gained in the Superyacht industry where he worked for over 12 years, latterly as captain of yachts up to 60 metres. He holds a Master CoC <3000 grt licence and took ownership of his first vessel in 2013. 'CWind Resolution', a CTruk 20T MPC classed under the new Bureau Veritas class notation 'Wind Farm Service Ships', is currently working on offshore wind farms off the North Wales coast.

Wind farm support vessel operators view on power & propulsion

Owners and operators can now consider various hybrid systems with marine applications. Cost / benefit analysis will start with the initial purchase of the system then work out payback period based on the life cycle of the vessel and life cycle of the hybrid power system. Integration needs to consider access for maintenance and onboard safety plans.