

International Windship Association
Quarterly Newsletter – Summary - October 2018

Secretary's Message

Welcome to the final IWSA quarterly newsletter of 2018, and while the year is not over, 2018 has already been a very significant one for wind propulsion and the shipping industry in general. We could say that a perfect storm is brewing for the uptake of primary (wind etc.) and secondary renewable energy (alternative fuels/energy storage) in shipping. **Policy, Price, Perception, Providers and People** are all starting to align.

Policy; the IMO is moving forward with the Sulphur cap, MRV and most importantly the initial targets of 'at least' 50% reduction in CO2 by 2050 (2008 baseline), which opens the door for that to be tightened further.

Price; we have significant upward pressure with HFO averaging in October around \$500/tn, ULSFO (\$650/tn) and MGO (\$700/tn), already well over the magic \$600 that brings ROI's for many wind propulsion systems into the three year bracket. Of course leasing and rental options will dramatically reduce CAPEX and savings from fuel shared to pay the cost of those installations. This pressure is set to increase with an expected \$100-150/tn increase when the Sulphur cap comes into force by the end of next year. An example of carbon price growth is the EU ETS, which has seen a huge increase in price, from \$7/tn to \$20/tn of CO2 in the last 12 months, with a leading German bank predicting that could rise to as much as \$100/tn by the end of 2020 (that equates to \$62/tn of fuel today, and a potentially game changing \$320/tn fuel in 2020).

While shipping is currently outside the ETS scheme, this is a good indication of the costs of slow action on decarbonisation going forward, and we should remember that many of our customers are included.

Perception; with some recent high profile installations of wind propulsion technologies the industry perception of the technology is shifting, but also the IPCC 1.5C report earlier this month was a wake-up call to all of us, indicating we have only 12 years until we reach that seriously challenging and potentially catastrophic benchmark and the report states a minimum of 45% CO2 reduction will be required by 2030, so action is needed – deeper and faster. As an official reviewer of that report, I was very pleased to see that a number of recommendations for key publications were included in the final draft, including the IRENA technical brief on renewable energy in shipping – while somewhat out of date; it still covers this area well, including a significant amount on wind propulsion.

Providers; that brings me to our members and other low carbon technology pioneers, as you'll see below, the movement in wind propulsion tech and project solutions is picking up pace, while we are still some way from having large numbers of market ready rigs available, that is moving very quickly and the Flettner rotor technology has already stepped up a gear with 8 rotors installed in the last 12 months and more on order.

People; last but not least, our industry is a broad church and shipping has always had highly talented people in sometimes difficult positions, but there is increasingly a shift to a new generation of decision makers that are focused on the triple bottom line, engineers and designers producing ever more innovative designs and customers demanding more action on emissions from shipping.

Wind propulsion is a credible, viable and increasingly profitable option and the industry is taking notice.

Project Updates & Wind Propulsion Developments

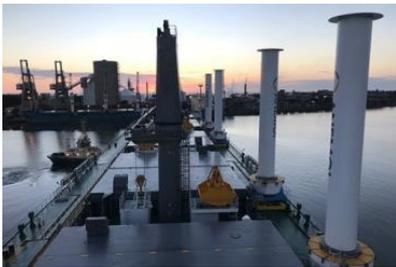
Flettner Rotor Development



Norsepower (Finland) - Wind Propulsion First – Installation of 2 x 30m Rotorsails on 109,000dwt Maersk Pelican LR2 product tanker, estimated to save 7-10% fuel. Another great stride forward in commercial wind propulsion installation. <https://youtu.be/7fjS-lLVoA> <https://www.norsepower.com/news>



MariGREEN (Germany) - Sea trials of Eco-Flettner system on FEHN POLLUX – present status: The trials were completed successfully and demonstrated full compliance with all class regulations. The data analysis shows a good alignment and the aerodynamic thrust and fuel saving potential exceeding model calculations with at least 10 per cent fuel on an annual average. In combination with route and speed optimization the saving potential is expected to be up to 20 per cent of fuel costs before the retrofit www.mariko-leer.de



Anemoi Marine Technologies (UK) has been awarded the 'Greenest Marine Service Provider Of the Year' at the 3rd International Green Shipping Awards, Oct 2018. <https://www.gssummit.org/awards/>
Anemoi Marine Technologies is a Flettner rotor technology company with four rotors installed on the 64,000dwt bulker MV Afros operating in the Pacific and Indian Ocean. www.anemoimarine.com

Hard Sail Developments



Windship Technology (UK) – has unveiled the Windship Technology Carbon Neutral Vessel Design. The Windship Auxiliary Sail Propulsion System (WASP) is projected to save at least 30% fuel consumption & emissions on bulk carriers and tankers. Combining this technology with **Permanently Reduced Engine Revolutions** (Projected 30% saving) & **Optimisation of ship & operations** (Projected saving 20%). To reach Carbon Neutral vessel operation, the last 20% uses **bio fuel extracted from waste**. Several major charterers and shipping companies have expressed their interest in the Windship WASP based Carbon Neutral transportation system. www.windshiptechnology.com



Bound4Blue (Spain) - The Bound4Blue team have been very active over the last 3 months a number of key activities have been: a very successful SMM2018 where they showcased the earlier prototype version of their collapsible wingsail. The team will also be presenting at a side event at MEPC73 in October.

www.bound4blue.com Selected as one of the 1000 Efficient Solutions of the Solar Impulse Foundation.

<https://solarimpulse.com/efficient-solutions/bound4blue-wingsail-system-for-fuel-efficiency-in-the-shipping-industry>



Peace Boat's Ecoship (Japan) announced the support of Dr. Sylvia Earle, National Geographic Explorer in Residence and founder of Mission Blue, who has confirmed her intention to advise the organization on the development of its onboard ocean and climate research lab, which will monitor the state of the ocean and climate during the voyages. Also investigating the possibility for Ecoship to pick-up plastic waste during its cruises. Even on a small scale, Ecoship should work to clean-up the plastic that is already at sea.

<http://ecoship-pb.com>

Soft Sail Developments



Neoline (France) is now focussed on the EU tendering process to be completed end of Oct/Nov., then starting the negotiation phase with shortlisted yards, consolidating the funding soon after. The goal is to begin the construction of the first ship in the first half of 2019 in order to start this new maritime service between Montoir, Bilbao, Baltimore and Saint Pierre et Miquelon at the end of 2020. www.neoline.eu

Suction Wing Developments

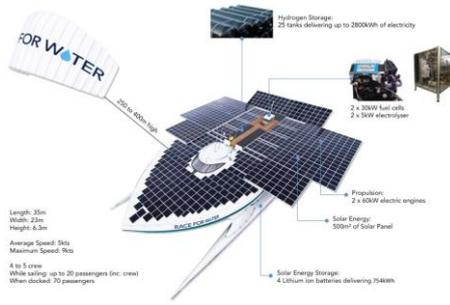


CRAIN Technologies (France) is currently testing a prototype of the suction sail concept in the La Rochelle Atlantic Port. The prototype is about 7.5 m height, which is typically one third of the full scale device. It integrates all the systems of a fully operational device such as fans, flaps and their associated control systems. The experimental setup includes a dynamometer in order to measure aerodynamic forces on the wind propulsion device which will be the source of additional thrust for the ships www.craintechnologies.com



eConoWind (Netherlands) - The first Ventifoils have been mounted in the first container and eConowind have made a principle arrangement with a shipper to test the system as soon as the preparations are completed. Recent activities include a great meeting and presentation at "Springtij 2018" last weekend where all Dutch NGO's and politicians dealing with the Dutch approach to sustainability / CO2 reduction in general etc. were gathered. www.econowind.nl

Kite Developments



SkySails Yacht GmbH - The company draws upon 17 years of experience of its parent company SkySails Group GmbH which is renowned for its innovative towing kite wind propulsion system for cargo vessels. SkySails is the first company in the world that has succeeded to develop kite technology as an industrial application with kites as large as 400m² delivering up to 2,000kW of propulsion power. The SkySails technology is patented worldwide. In the last few years, SkySails Group has extended its product range based upon its towing kite core technology: Next to developing a propulsion system for the use on yachts (SkySails Yacht GmbH) and for generating power from high altitude winds (SkySails Power GmbH) www.skysails.com

Small Cargo Vessel Segment Developments



Sail Cargo Network (North Sea Region) - Fair Winds Trust

www.fairwindstradingcompany.org developing Sail Cargo Network under the EU Interreg Dual Ports project. Proposed next stage is to pilot a sail cargo vessel retrofitted with either a co-combustion H2 & Diesel engine or electric drive train + fuels cells/battery & diesel drive options, creating a virtually zero-emissions solution using existing technologies with the flexibility to work anywhere. DualPorts Website: www.dualports.eu/sail/



Sail Cargo Inc. (Costa Rica) - is a project to build the S/V Ceiba, a wooden hull sail cargo vessel in the jungles of Costa Rica. The project is very active with a highly motivated team that is currently engaged in sourcing the build materials and securing/building the production facilities. www.sailcargo.org



TransOceanic Wind Transport [TOWT] (France) - Following 7 years of sail cargo experience on existing sailing ships, based on the ANEMOS certification scheme, and 3 years of R&D, TOWT has created a ship-owning structure, secured cargoes and raised initial funding to launch the build of its new "Voilier-Cargo" vessel. 1,000 tn cargo on the scheduled routes at an average 10-knot speed, with over 90% of CO2 emission reduction www.towt.eu



Fair Transport (Netherlands) - The SV Tres Hombres has been under extensive refit, helped out by a great set of volunteers from around the world. They are preparing the winter schedule at present. The Tres Hombres and Nordlys are engineless cargo ships, providing an ideal situation for the training of seafarers. Winter schedule is online: <http://fairtransport.eu/sail-along/>

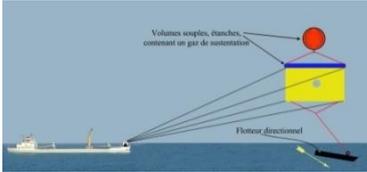


VoyageVert Ltd (UK) - have been developing their business model and exploring a number of avenues to create their core business 'Passenger Sailing Ferry' plan, which will soon be available as an investment prospectus.

They have selected a North Atlantic sea route and propose that the first Sailing Ferry Vessel will provide a truly sustainable means of travel for the 30-50 passengers. They have invested in a small pilot vessel refit and hope to build on those plans as the funding becomes available. www.voyagevert.org



SS Eileen II (Germany) - Offshore supply vessel concept: Based on the development of the sailing coaster *SS Eileen* with little alterations in specific features, the team is looking at the offshore supply vessel market. An intelligent combination of conventional rigging with modern technologies without expensive pre-development results in an energy-efficient way to serve even supply tasks in coastal operation areas. <http://wind-ship.org/en/schormanns-maritima-iwsa-associate-member/>



Verna Inventions (France) - The development of this kite sail is moving forwards out of the concept stage into R&D, with the production of scale models and the testing of small prototype versions. http://inventions.a.verna.free.fr/voile_prototype.htm

New Members & Registered Supporters

New Member - Add-Modules Technologies www.add-modules.fr

New Registered Supporter - Zéphyr & Borée <http://zephyretboree.com>

Research

Delft University of Technology [TU Delft] (Netherlands) has a new webpage devoted to wind-assist: <https://www.tudelft.nl/en/3me/departments/maritime-and-transport-technology/research/ship-hydraulics/research/wind-assisted-ship-propulsion/>

Recap - Recent Shipping Reports (Wind propulsion uptake & potential)

[“Assessment of selected alternative fuels and technologies”](#) DNV GL

[“Decarbonising Maritime Transport by 2035”](#) International Transport Forum (ITF)

[“Zero Emission Vessels: What needs to be done?”](#) Sustainable Shipping Initiative (SSI)

[“Study on the analysis of market potentials and market barriers for wind propulsion technologies for ships”](#) EU DG Climate Action (CE Delft, Tyndall Centre for Climate Change Research, Fraunhofer ISI, and Chalmers Univ. of Tech.)

For Further Information

For interview requests, membership information and IWSA events schedule, please contact IWSA Secretary, Gavin Allwright secretary@wind-ship.org.

NOTE: As a registered supporter, associate member or full member you will receive the full quarterly newsletter.

Membership (check membership list for further details www.wind-ship.org) :

Registered Supporter – Free (requested donation)

Associate Member (open to all that share our goals) - €200 (SMEs), €1,000+ (large organisations)

Full Member (reserved for wind propulsion projects) - €300 (SMEs), €1,000+ (large organisations)