2016 / 2017

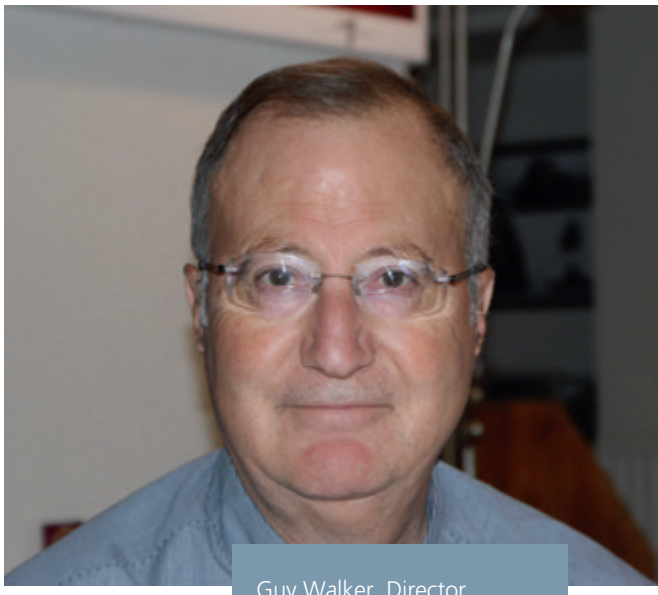
TRANSPORT

The Parliamentary Review

A YEAR IN PERSPECTIVE

Windship Technology

A Windship rig fitted ship



Guy Walker, Director

A consortium set up by five shipping industry leaders to develop a sail power concept, Windship Technology aims to revolutionise the way tomorrow's large vessels carry goods across the world's oceans. But the next critical step, according to its team, is to acquire funding in order to ensure this vision becomes reality.

In today's shipping industry, one of the main cost challenges is the powering of both oil tankers and dry cargo ships carrying 50,000 tonnes and upwards. Due to the sheer size of the vessel and the power exerted, its running costs can prove expensive for operators. Research shows that an estimated 60 to 70% of freight charges are consumed by fuel costs, leaving little in the way of profit for the shipowner or debt recovery for the bank. In an industry with increasingly shrinking margins, this is problematic.

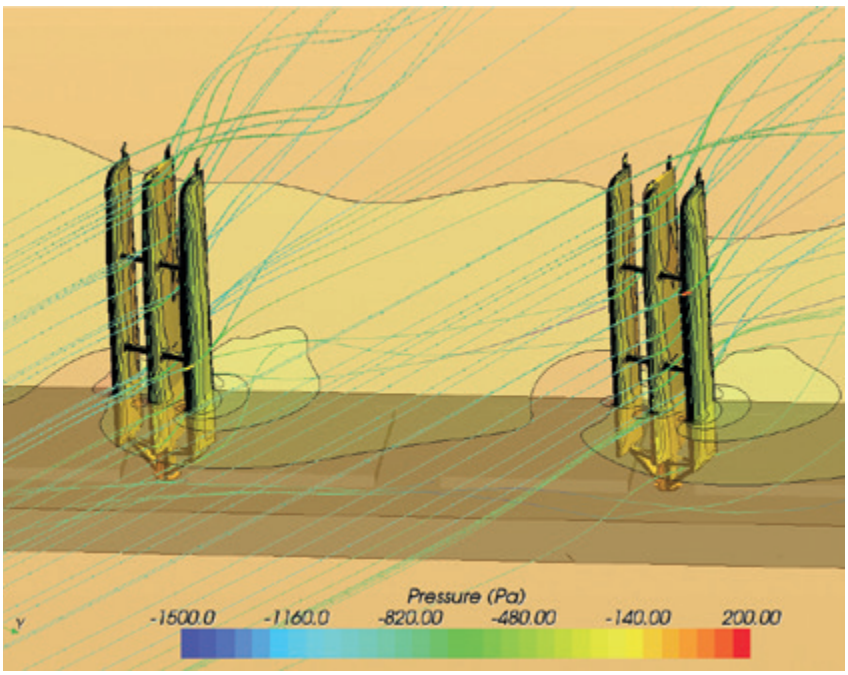
With these sector concerns, we formed the Windship Technology consortium in 2013 to develop an Auxiliary Sail Propulsion System (ASPS) solution aimed at improving ship performance by reducing fuel bills by up to 30% per year.

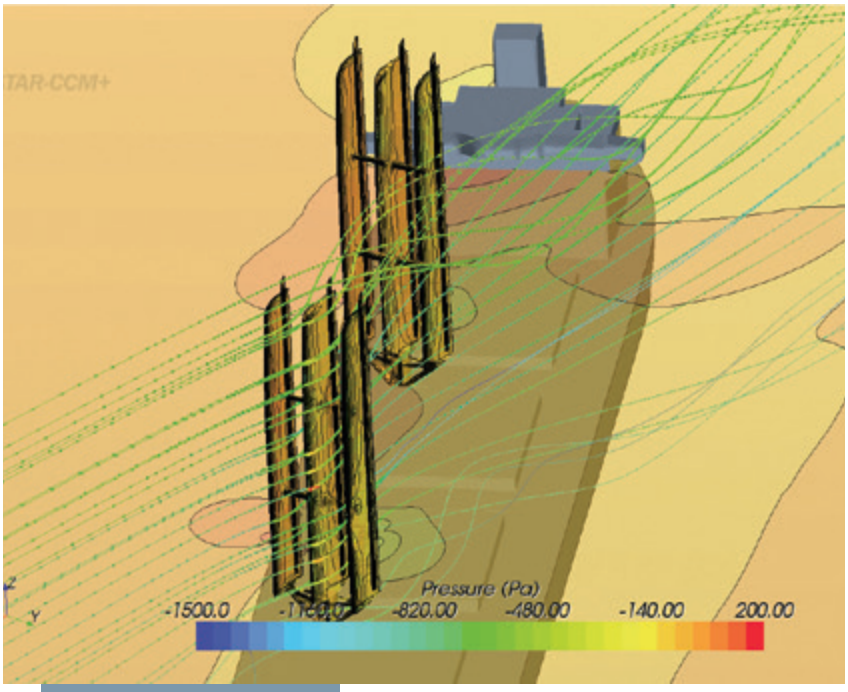
How it works

The ASPS concept draws on wing foil technology, which involves the installation of three 35-metre high masts (or rigs) installed on the deck of a vessel. Each will have three aerodynamic wings fitted. The masts or rigs rotate automatically to exploit the power of the prevailing wind and, as the speeds and angles of the wind change, the system develops more power, allowing reductions in engine power to be made in order to achieve the same speed and so maximise on fuel saving.

FACTS ABOUT WINDSHIP TECHNOLOGY

- Led by five key shipping industry figures including:
  - Robert Elliot (Senior Partner at Linklaters)
  - Guy Walker, (Chief Executive Officer of leading ship operator, Star Marine)
  - David Barrow (Director at Sparcraft)
  - Lars Carlsson (Chief Executive Officer Concordia Maritime and Chairman of Intertanko – Retired) and
  - Simon Rogers (award-winning yacht designer)
- Head Office in London
- Design independently verified by the University of Southampton and Lloyd's List through computer fluid dynamics testing methods





Lloyd's Register CFD images while wind testing a Windship rig fitted ship with two rigs

A large industry

The Windship ASPS system will transform the way ships are operated. There are of course other sail alternatives in the market, but we don't see them as competitors. This is because the shipping industry is so vast and varied, with more than 100,000 seagoing cargo vessels of all types currently operating, there is no single one-size-fits-all power solution and in many cases a ship can easily have more than one system.

Becoming verified

In order to convince a conservative shipping market of the viability of Windships' independent quality validation is vital. To date, the Windship System has been tested by Southampton University Wolfson Unit using computer fluid dynamics (CFD), a process of computerised model testing which analyses and solves designs through available data. It is known and accepted by most designers that the difference between the outcome of CFD and the outcome of a prototype will not vary by more than 3%.

The Windship project has also further been independently verified by Lloyd's Register (LR). On request LR carried out further completely independent contract for difference (CFD) work on a Windship fitted Supramax bulk carrier in varying wind directions and speeds, Lloyd's Register's Technical Investigation Department (TID) found that the Windship ASPS system has the potential to provide all of the required propulsive thrust a vessel needs with 28 knots of wind off the beam. Having tested 3,000 seaborne calculations, Windship Technology Ltd makes the claim that a ship will save 30% of its fuel over a 12 month period for a standard retrofitted bulk carrier a purpose designed and built ship would save more than 70% of its consumption. These claims can be supported.

Funding a prototype

The shipping industry by nature is very conservative and must see a full-sized prototype before it will accept any claim, so the reality is that a fully-working prototype is necessary in order to convince the world that Windship rigs will work. The construction of the first rig is the most difficult part. Once people can see it and the readings obtained from it to prove the CFD results, then private

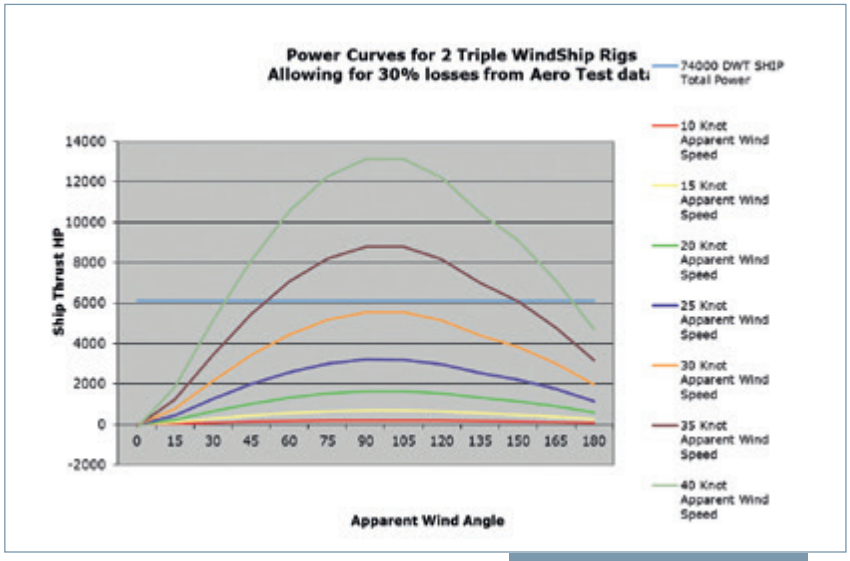
sector funding will not be so difficult. It is a fully British idea that requires foresight and courage and vision from government ministers.

We've spoken to the Government about potentially funding the first phase to the tune of £6.5 million, which would see the building of one rig at the ship builder Cammell Laird's shipyard in Birkenhead. Once built, this would be placed in the ground and tested by the Southampton University. Assuming the success of this part, we'd then build two further rigs to be placed on a physical ship. We are convinced that once the important step of placing the first rig in the ground is achieved and shows tangible results, then raising the rest of the funding commercially won't be problematic.

The Government's role

Getting over that first hurdle with government funding assistance is crucial not just for the Windship project but also the wider shipping industry. London was the world hub of shipping, a title it has lost to Singapore and Hamburg. Our Windship solution will bring much shipping back to London and invigorate the market further boosting jobs. It will create industrial jobs both in the North and South of the UK and enhance Britain's reputation as thinking globally, solving global emission problems. The Government wants itself to be seen as having a good track record of helping to nurture industry, embracing this clean industry initiative would greatly benefit Britain's industrial and clean energy standing. The Government also has mechanisms such as the Innovate UK, along with people in government who do understand the shipping industry.

It is a question of getting government to listen when there is so much noise going on in Westminster for other reasons. Overseas governments in



6,000hp is the normal thrust of an engine – the power curves show how much power can be generated using the wind and Windship rigs

Europe and Asia Pacific have also shown serious interest in funding the Windship project, which when it is seen as another British project going abroad due to lack of government support, will embarrass the Government, especially one thats claiming to be a government of the people.

By developing the prototype, ideally on UK shores, we are confident that many operators would be attracted to the potential cost and environmental benefits. Wind power at sea is readily available for all ships, and ships currently emit one billion tonnes of CO_2 and noxious fumes into the air. Potentially, Windship could reduce that by 30% – a significant figure.

The market

The reception with cargo charterers has been positive especially from mining companies and grain houses, the primary senders of bulk cargo shipments, increasingly being required to show sustainable shipping methods. But in a relatively conservative industry, no one is prepared to take that first step without a prototype. We are very confident that once the prototype hurdle has been overcome, a plethora of key industry players will draw on Windship.

"It is a question of getting government to listen when there is so much noise going on in Westminster"