

FOCUS: Costly Oil May Prompt Sail Power Comeback In Shipping

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LONDON (Dow Jones)--The shipping industry will keep a close eye on the progress of the MV Beluga SkySails as it sets sail from Europe to Venezuela this week to become the first modern cargo ship to cross the ocean with the aid of wind propulsion.

The return of sail, albeit a high-tech 21st century version, is due in large part to the doubling of the oil price to \$100 a barrel this month that has eaten into the profits of many shipping companies. But there is also growing pressure on the industry to reduce the pollution it pumps into the atmosphere.

The first test of the system, called SkySail, on a long voyage is scheduled to begin at the end of this week, when the 10,000 ton Beluga vessel loads its cargo of heavy manufacturing equipment in Bremen, Germany and begins the 14-day voyage to Venezuela. It's also planned to deploy SkySail on its return voyage from Boston in the U.S. to Europe.

Verena Frank, spokeswoman for German cargo-shipper Beluga said she expects average savings of between 10%-20% in fuel consumption, worth about \$2000 per sailing day at current prices. The sail system, which costs around EUR500,000 should pay for itself within three to five years, she said.

A SkySail looks very different to the sheets of canvas and tall wooden masts that propelled Christopher Columbus to the Americas across the Atlantic more than 500 years ago. It resembles the canopy of a paraglider and flies high above a ship at the end of a long cable. Where the pilot of a paraglider would sit is a high-tech control pod connected to a computerized auto-pilot that can perform sophisticated maneuvers to maximize the capture of wind energy. SkySail's automatic launch system can deploy the sail in less than 20 minutes.

While the great merchant clippers of the 19th century would have employed around 40 crewmen to unfurl and tend sails during a voyage, Stephan Wrage, chief executive of SkySails AG and designer of the system, said it requires no additional personnel and only a few days' training for existing crew.

Wrage added that because the SkySail flies between 100 and 300 meters above the surface, where winds are stronger and more stable, it is also much more effective at capturing wind energy than a traditional sail. A single 800 square-meter SkySail could achieve the same propulsion as a traditional four-masted ship with 3,000 square meters of sail.

Wrage said these factors should enable the SkySail, which operates in tandem with the ship's engines, to produce around 50% of the thrust a ship needs.

Even allowing for less than perfect wind conditions, annual fuel and emissions savings of between 10% and 35% should be achievable, he said.

It is this combination of economic and environmental benefits that has brought Beluga Shipping into the project, said the company's spokeswoman Frank.

"The economic impact has been the primary consideration because bunker prices are jumping from one record high to another," she said.

Rising crude oil prices have driven the price of most marine bunker fuels up fourfold since 2002, a cost which some shipowners have struggled to pass on to customers.

"High fuel prices aren't making running ships unprofitable, but yes, it's eating into profit margins," said Bill Box, spokesman for the International Association of Independent Tanker Owners, or Intertanko.

The growing pressure on the shipping industry to reduce polluting emissions is also a factor, Frank said.

Ships operating in European waters are expected to emit more nitrogen dioxide and sulfur dioxide than land-based sources in the 25 European Union member countries by 2020. Global carbon dioxide emissions from shipping exceed those of aviation.

The E.U. has already restricted the sulfur emissions of ships operating in the Baltic and North Seas and the U.S. Senate has considered similar measures. The E.U. is debating the inclusion of shipping in its CO2 emissions trading system.

But despite these pressures, SkySails is by no means a surefire winner.

"Ship owners are very conservative and unless something is put down as a rule or regulation they are unlikely to put any effort into being innovative," said Kamar Zaman, Director of Technical Services at London-based maritime consultancy Drewry.

Fuel costs could be a decisive factor, but ship owners will take some convincing. "We've got to see it (in operation) for quite some time...it has to prove itself," Zaman said.

So far there is little operational data on SkySails, but that will begin to change in the next few months. Since October last year, German shipping company Wessels Reederei GmbH & Co has been testing a 160 square-meter SkySail aboard its 3,600 ton cargo ship the Michael A on voyages from northwest Europe to the Mediterranean.

The ship has flown the sail on 20 out of 60 sailing days, said managing partner of the company Gerd Wessels. So far it has been operated by two SkySails engineers, but testing of the auto-pilot system will begin this week.

After 100 days sailing with the system, Wessels will open its books late March for others to see the operational performance and fuel savings achieved in the tests. Wessels is confident the results will show a fuel saving.

Contingent on successful trials, SkySail's manufacturing capacity is fully booked until the middle of 2009, a total of around of 40 systems.

Beluga plans to equip two new 20,000 ton vessels due to be delivered from Chinese shipyards in 2009 with 600 square-meter SkySails.

Wessels Reederei, which was considering converting some of its ships from burning marine gasoil to using cheaper but dirtier high-sulfur fuel oil because of high prices, plans to fit at least three new ships to be delivered next year with SkySails.

The SkySail system isn't suitable for the biggest container ships or tankers, because they travel too fast, but Wrage estimates around 60,000 ships worldwide are suitable. "Our plans are to equip 1,500 ships by 2015," he said.

Progress will depend on the wider industry, which remains skeptical, said Intertanko's Box. "If significant cost savings can be demonstrated, then others might start looking at it," he said. Ease of use is just as important. "If they can prove that you just push a button and up it goes...I'm sure that will help," Box added.

The system could be vulnerable if the commodities boom suddenly reversed.

When oil prices were high in the past, ships tried using aluminum foils as sails, said Zaman. When the oil price fell below \$10 a barrel in the late 90s, "no one wanted to look at these ships." Only five vessels were fitted with those foils, he said.

"If the oil price drops to \$35 a barrel, we would be in real trouble," Wrage said, "but I don't think the oil price will drop that far again."

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