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As oil goes up, shippers hoist sails

Wind makes a return to power the Beluga on 'greener' journey

By James Herron

London -- THE GLOBAL SHIPPING industry will be watching closely this week as the MV Beluga SkySails becomes the first modern cargo ship to set sail on a journey across the Atlantic Ocean.

The return of wind power to the shipping industry, albeit a high-tech 21st-century version, is due in large part to the near-doubling of the oil price to close to \$100 a barrel over the past year, which 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 will begin tomorrow, when the 10,000-ton Beluga loads its cargo of heavy manufacturing equipment in Bremen, Germany, and sets out on a 14-day voyage to Venezuela. It also is planning to deploy SkySail on its return trip to Europe.

Verena Frank, spokeswoman for German cargo-shipper Beluga Group, said she expects average savings of between 10% and 20% in fuel consumption, worth about \$2,000 per sailing day at current prices. The sail system, which costs around 500,000 euros, or about \$730,000, should pay for itself within three to five years, she said.

A SkySail looks very different from 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 autopilot 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.

Mr. Wrage added that because the SkySail flies between 100 and 300 meters above the surface, where winds are stronger and more stable, it is 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.

Mr. 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 Ms. Frank.

Rising crude-oil prices have driven the price of most marine fuels up fourfold since 2002, a cost 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.

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

The EU 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 EU is debating whether to include shipping in its carbon-dioxide-emissions trading system.

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

"Shipowners 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 shipowners will take some convincing. "We've got to see it [in operation] for quite some time . . . It has to prove itself," Mr. Zaman said.

So far there is little operational data on SkySails, but that will begin to change in the next few months. Since October, 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 autopilot system will begin this week.

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 Mr. Wrage estimates around 60,000 ships world-wide 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 Mr. 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," he added.

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