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**Harnessing the power of wind**



Oslo: Oil prices might be falling fast, but environmental regulations continue to tighten meaning the rush to develop innovative green ship designs continues.

One amazing looking vessel design making waves lately, including on CNN, comes from Norway and the design house Lade AS. The Vindskip is a towering, iron-shaped, hybrid eco-efficient vessel powered by the wind and LNG. A couple of explanatory videos of how the Vindskip will work can be accessed [here](https://www.youtube.com/watch?v=BFhmqoS7EqI) and [here](https://www.youtube.com/watch?v=cZo33MQeFN4).

Terje Lade explains how this concept came about.

Having been working as a designer in big offshore engineering projects, he was working with on the design of speed sailing vessels in his spare time for many years.

“The target,” he says, “was maximum speed for a given sail area. This, what you may call the greed for speed, was gradually being replaced by a concern for the environment and the earth, and then the Vindskip was born. The greed for speed became eventually a concern for the environment.”

The relative wind, or apparent wind, is a crucial factor in designing aircrafts, propellers and sailing boats. However, for the construction of commercial vessels, this is, Lade says, “a revolutionary new way of thinking”.

“Being inspired by the aerospace industry and sailing, Vindskip is designed to exploit the wind for propulsion. The unique aspect is the design of the hull, both above and below water,” says the ship designer.

The Vindskip design is best suited to roros, PCTCs, membrane-type LNG carriers and passenger and containerships.

The Vindskip concept consists of three parts. The wind power system comes from the hull which is shaped like a symmetrical air foil going in the relative wind, and generates an aerodynamic lift giving a pull in the ship’s direction. Then there is the cruise control. With an LNG-powered propulsion system in addition, starting the ship from zero, one can exploit the aerodynamic lift now generated to create speed and save fuel. Finally there is a specific weather routing module version.

“By developing navigation algorithms which can give you the optimum wind angle for maximum effect of the design, you can find the best route across the ocean, either most economical or by ETA,” Lade explains.

By as early as 2019 one of these revolutionary vessels could be afloat, sailing the seas.

The concept has been tested in wind tunnels, optimised by computational fluid dynamics and a tank testing is scheduled to start in April this year.

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Ship classification company DNV GL has performed both a so called GAP-analysis and an intact and a damage stability study. “Their conclusion is clear, this is feasible,” Lade reveals.

Shipowner Wilh. Wilhelmsen has joined the project on a technical level as “a demanding sparring partner” and a potential user of the project.

To build the first ship, a shipowning company will be formed, then a shipmanager will be deployed to supervise construction which could take two to three years.

Due to its very low fuel consumption, Vindskip can utilise LNG as fuel and will be capable of 70 days of steaming between bunkering. Thus it can meet all future emission requirements, Lade claims.

“Cargo owners will in the future choose sustainable sea transport for their environmentally friendly products as CO2 emissions will be a part of the product labelling, where the actual transport is included,” Lade maintains. [20/01/15]

​[http://www.maritime-ceo.com/News/Lade:-Harnessing-the-power-of-wind/3w3c524.html](http://www.maritime-ceo.com/News/Lade%3A-Harnessing-the-power-of-wind/3w3c524.html)​



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