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Vale receives international award for innovative use of wind propulsion in shipping

Rotor sails project, a technology that increases efficiency and reduces carbon emissions, is one of the winners of the Wind Propulsion Innovation Awards

Vale's project to create the world's first large ore carrier equipped with rotor sails won last Thursday (11/11) the Wind Propulsion Innovation Awards, presented by the International Windship Association in Glasgow, Scotland, at a side event during the 2021 United Nations Climate Change Conference (COP26). The organization, which encourages the global use of wind propulsion in commercial shipping, awarded Vale the prize in the category for companies that encourage the adoption of this type of technology through prototypes or commercial use - since May, the company's fleet of ships has a Guaibamax equipped with the rotor sails.

In total, 84 nominations were submitted to a panel made up of members of the industry, academia, supporters of wind propulsion technology and people linked to energy and sustainability areas. Vale was the winner in one of the four categories opened to public vote. According to the organizers, pioneering projects, innovative technologies, people and companies that are making a difference in advancing wind propulsion as an efficient, low-carbon and sustainable option for the commercial shipping fleet were recognized.

"This active listening and engagement with society is very important, and not only recognizes our work of the last few years, but mainly sends us a strong message of how important the climate change agenda and the transition to a low-carbon world is and how we must be part of the solution," says Vale's marine engineering manager, Rodrigo Bermelho.

The rotating sails are cylindrical rotors, four meters in diameter and 24 meters high - equivalent to a seven-story building. During operation, the five rotors rotate at different speeds, depending on environmental and operational conditions of the ship, to create a difference in pressure in order to move the ship forward, based on a phenomenon known as the Magnus effect. Still in the testing phase, rotor sails can offer an efficiency gain of up to 8% and a consequent reduction of up to 3,400 tons of CO2 equivalent per ship per year. If the pilot proves to be efficient, it is estimated that at least 40% of the fleet will be able to use the technology, which would impact on almost 1.5% annual emissions reduction by Vale's iron ore shipping

Carbon Target

The project to use rotor sails is part of Ecoshipping, a program created by Vale's shipping area to meet the company's challenge to reduce its carbon emissions, in line with what is being discussed at the International Maritime Organization (IMO). Last June, the company announced that it will invest between US\$ 4 billion and US\$ 6 billion to reduce by 33% its scope emissions 1 and 2 until 2030. It also announced that it will reduce by 15% its scope emissions 3 until 2035, related to the value chain, of which shipping emissions are part, since the ships are not owned. The targets are aligned with Paris Agreement.

In August this year, Vale received the first Guibamax ship with air lubrication installed. The technology creates an air bubble carpet on the ship underside, allowing the water to reduce friction with the hull. Conservative expectations are for a fuel reduction of around 5 to 8%, with a potential reduction of 4.4% in annual emissions from Vale's iron ore shipping.

Efficiency

By adopting new technologies and renewing its fleet, Vale has heavily invested to incorporate state-of-the-art efficiency and environmental innovation in shipping. Since 2018, the company has been operating with second-generation Valemaxes and, since 2019, with Guaibamaxes, whose capacities are 400,000 tons and 325,000 tons, respectively. These vessels are among the most efficient in the world and can reduce CO2 equivalent emissions by up to 41% compared to a capesize ship, of 180,000 tons, built in 2011.

More information



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