Solar and wind powered concept boats: The example of Volitan

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Abstract

Effects of global warming have increased the search for alternative energy use in maritime transportation, which generates 3.3 percent of total global greenhouse gas emissions. Boats using solar and wind power have been developed with increased efficiency during the last decade and instead of fossil fuel dependent vehicles, sea crafts with near zero emissions are aimed. Some important milestones in solar-powered sea transportation have been achieved through experimental projects and research, yet these only indicate a beginning to an exploration of sustainable and efficient means regarding marine technologies.

This article illustrates a background on alternative energy, and in particular sun and wind power use in maritime vessels, and provides a brief overview of solar boats. In line with this perspective, an award-winning sailboat concept is presented and its design challenges, considerations and criteria are discussed to document the design process. Developed to explore the possibilities offered by clean energy sources and composite materials in yacht design, Volitan is proposed as a sustainable alternative to the fossil fuel powered boats. Project employs solar and wind energies that enable a self-sufficient private sailboat to continuously circumnavigate with near zero carbon emission. The article compiles the design issues and parameters in the designing of an eco-friendly boat concept to be referred in future studies. Finally, it concludes by addressing the potential of (i) use of alternative energies that are renewable and non-polluting and (ii) use of contemporary materials and technologies in sea vessels design to achieve lightweight yet durable and low-cost boats with increased efficiency and performance.

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Volitan: X-Wing Masquerading as a Boat. Why haven’t we seen this before? The Volitan is a concept sailboat which runs on alternative energy (you know, like sail boats have done since forever). The Volitan (which means flying fish), might pretend to be the next generation of green, sea going craft, with its fancy solar panels and solid sails, but it's obvious to anyone that this is an X-Wing Fighter. We have been unable to confirm if it ships with an orange helmet or slot-in R2 unit. Volitan [YouTube. Thanks, Jimmy!] The Volitan: The Solar/Wind Powered Concept Sail-Vessel [Treehugger]. The Flyi