AGH Solar Boat as sustainable solution to combat climate change

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Abstract

Statement of problem: Nowadays we are challenged by many issues regarding pollution in natural environment. Peoples' actions have a big impact on many environmental aspects including water which makes up to 71% of Earth's surface. There are various types of pollution sources. The biggest problem are marine transportation ships, nonetheless we have to point out the way people use inland waters. Rivers and lakes are used for recreational, cargo and communication purposes. Currently vast majority of boats is powered by conventional sources of energy. It has a negative impact on water quality as well as on people's life.

One means of combating the issue is to replace boats that are powered by conventional energy sources with boats that are powered by solar energy. This paper considers to apply that solution by the example of solar boat built by students from AGH University of Science and Technology in Cracow, Poland. The paper compares solar boat and regular boat powered by non-renewable energy sources. It considers how it affects the environment and natural ecosystems. Furthermore, it shows the possibility to use solar boat in different areas of human life. Studies were performed based on a boat built by AGH Solar Boat Team. Study includes, among other areas, the energy use as a function of velocity and noise level for solar boats.

Image



Figure 1 Solar boat built by AGH Solar Boat Team

Recent Publications

1. Curtis J, Hynes S, Breen B (2017) Recreational boating site choice and the impact of water quality. Heliyon Volume 3, Issue 10.
2. Pecorari E, Squizzato S, Ferrari A, Cuzzolin G, Rampazzo G (2013) WATERBUS: A model to estimate boats' emissions in "water cities". Transportation Research Part D: Transport and Environment 23:73-80.
3. Reabroy R, Tiaple Y, Pongduang S, Nantawong T, Iamraksa P (2015) The Possibility of Using Electrical Motor for Boat Propulsion System. Energy Procedia 79:1008-1014.
4. Nasirudin A, Chao R, I Ketut Aria Pria Utama (2017) Solar Powered Boat Design Optimization. Procedia Engineering 194:260-267.
5. Gorter T (2015) Design Considerations of a Solar Racing Boat: Propeller Design Parameters as a Result of PV System Power. Energy Procedia 75:1901-1906.

Biography



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Notes/Comments: