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Offshore structure for farming of macroalgae biofuel species

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Macroalgae are aquatic plants capable of producing energy like most other plants by a way of photosynthesis. Algae are naturally capable of producing large amounts of fatty acids and can be grown on non-arable land without competition with food crops using only sunlight and water for growth, this category of organism has long been considered to have potential for producing transportation fuels particularly biodiesel, which is produced by the chemical trans-esterification of fatty acids. These characteristics give algae exceptional biomass output and fuel conversion potential when compared with land crops in per unit area comparisons. Properly supported large scale algae cultivation presents an achievable opportunity to significantly replace fossil fuel usage. The design of offshore mariculture system specifically for seaweed farming for the biomass production for biofuel requires a complex ocean engineering system, large area of cultivation that would meet the demand of feedstock. Such system required risk based design and incorporation of holistic design that assess biological, oceanography, environment, engineering, ecology and ocean governance. This paper describes the design of very large floating structure for cultivation of macro algae biofuel species in open sea. This paper also describes the conversion of seaweed to biofuel.

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