

Design Of Strategic Optimization For Macroalgae-Based Biofuel Supply Chain – A Logistic Case Study In Korea

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Nowadays, due to depleting fossil energy resources finding and distributing new and renewable energy resources become a strategic issue for all worlds. Bioenergy has been introduced as a mean to address challenges of conventional energy sources. This work focuses on biofuel supply chain optimization for a specific kind of macroalgae named *Saccharina japonica*. The supply chain contains harvesting of macroalgae, production of biofuel and distribution to consumers. A mixed integer linear programming (MILP) was developed to determine the strategic level (long term period) supply chain by employing the total annual cost as objective function. The main goal is a feasibility study of the technologies used based on distance among harvesting sites, biorefineries, and consumers. A developed supply chain can support national policies required to meet the national target set by Paris Agreement.