

A New Tactical Optimization Model for Bioenergy Supply Chain

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Abstract : Optimization is an important aspect of logistics management. It can reduce significantly logistics costs and also be a good tool for decision support. In this paper, we address a planning problem specific to biomass supply chain. We propose a new mixed integer linear programming (MILP) model dealing with different feed stock production operations such as harvesting, packing, storage, pre-processing and transportation, with the objective of minimizing the total logistic cost of the system on a regional basis. It determines the optimal number of harvesting machine, the fleet size of trucks for transportation and the amount of each type of biomass harvested, stored and pre-processed in each period to satisfy demands of refineries in each period. We illustrate the effectiveness of the proposal model with a numerical example, a case study in Aube (France department), which gives preliminary and interesting, results on a small test case.

Keywords : biomass logistics, supply chain, modelling, optimization, bioenergy, biofuels

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