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Planning biomass energy production in a farming area

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The paper presents a method to analyse biomass supply and energy demand at local level in order to optimize bioenergy development plans and to deal with the associated social and environmental issues. It determines the optimal setting by solving a mixed integer programming problem that has plant locations and collection basins as decision variables, once a specific biomass production and conversion scenario has been defined. It also allows to evaluate CHG emissions and NPV of the entire supply chain. The method has been successfully applied to an agricultural province in Italy and showed the high potential of biomass exploitation.