

Using improved iterative gravity method to optimize the investment location of agricultural biomass power generation projects: a case study

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Abstract: Biomass power generation has characteristics of good quality of power generation, high reliability and mature technology. It plays significant aspects in maintaining the safety of energy, optimizing energy structure, alleviating environmental pollution and promoting the economic development in the rural areas. Analyzing the investment of biomass power generation in China systematically cannot only improve the scientificity of the investment process, but also guide the industry to develop rapidly and healthily. At present, the investment areas of agricultural biomass power generation projects are too concentrated and the fuel supply is difficult, which affect the normal operation of biomass power plants and lead to loss or on the verge of profit and loss of biomass power generation plants. This paper constructed the optimal model of investment location of agricultural biomass power generation projects using the iterative gravity algorithm based on the key factors analysis to affect the operation costs of agricultural biomass power plants. The model optimized the transportation lines and transportation distance, and gained the smallest transport costs of power generation materials after a few iterative calculations. This paper took Huantai County as an example, and determined the optimal investment location of agricultural biomass power project using the Region props toolbox of Matlab 7.4. The simulating calculation of Huantai County showed that the results given by this model are reliable, and this method to select the investment location of agricultural biomass power projects is feasible and effective.

Keywords: Agricultural biomass power generation projects, investment location selection, optimized iterative gravity method, Huantai County.

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