

A Model for Solar Plant Site Selection

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Abstract

Current use of excessive oil and natural gas is causing the greenhouse effect, the destruction of the Earth's ecology, and the increase in disaster crises. Many countries are forced to start looking for new alternative sources of energy to prevent irreversible environmental problems. Taiwan is an island belonging to subtropical area with abundant sunshine, and it is very suitable for the development of solar energy. Due to the effect of high atmospheric pressures in summer and continental cold masses in winter, coupled with complex terrain, different weather phenomena exist in the northern and southern Taiwan, and the weather, temperature, sunlight and rainfall are different in different places. Before setting up a solar plant, a good assessment and planning is necessary to prevent a waste in financial and natural resources in the future. This research first uses literature review to search for the important factors, and experts are invited to confirm the factors. Data envelopment analysis (DEA) is then applied to assess and analyze which areas in Taiwan are most appropriate for setting up solar plants. Results of the study shall provide solar industry for reference for sustainable development.

Keyword : Solar energy, site selection, data envelopment analysis (DEA)