

Development of Solar Energy Resources for Land along the Transportation Infrastructure: Taking the Lan-Xin Railway in the Silk Road Economic Belt as an Example

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Abstract : Making full use of space along transportation infrastructure to develop renewable energy sources, especially solar energy resources, has become a research focus in relevant fields. In recent years, relevant international researches can be classified into three stages of theoretical and technical exploration, exploratory practice as well as planning implementation. Compared with traditional solar energy development mode, the development of solar energy resources in places along the transportation infrastructure has special advantages, which can also bring forth new opportunities for the development of green transportation. 'Road Integrated Photovoltaic', a development model of combining transport and new energy, has been actively studied and applied in developed countries, but it was still in its infancy in China. 'New Silk Road Economic Belt' has great advantage to carry out the 'Road Integrated Photovoltaic' because of the rich solar energy resources in its path, the shortages of renewable energy, the constraints of agricultural land and other reasons. Especially the massive amount of construction of transportation infrastructure brought by Silk Road Economic Belt, large area of developable land along the transportation line will be generated. Abundant solar energy recourses along the Silk Road will provide extremely superb practical opportunities to the land development along transportation infrastructure. We take PVsyst, GIS and Google map software for simulation of its potential by taking Lan-Xin Railway as an example, so potential electrical energy generation can be quantified and further analyzed. Research of 'New Silk Road Economic Belt' combined with 'Road Integrated Photovoltaic' is a creative development for the along transport and energy infrastructure. It not only can make full use of solar radiation and land in its path, but also bring more long-term advantages and benefits.

Keywords : land use, silk road economic belt, solar energy, transportation infrastructure

Conference Title : ICIUDTS 2018 : International Conference on Innovative Urban Designing and Traffic Systems

Conference Location : New York, United States

Conference Dates : June 03-04, 2018