7ᵗʰ World Congress and Expo on **Green Energy**

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3ʳᵈ World Congress on **Wind & Renewable Energy**

June 24-25, 2019   Barcelona, Spain

A duel-standard system of landscape visual impact threshold in wind farm under social constructivist perspective

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As a main part of renewable energy, wind industry expands dramatically under the global energy transition and de-carbonization. With steep growing capacity, the environmental impacts caused by wind farms should not be neglected any more. The physical environment impacts like noises, shadow-flicker can be improved by technological advancements. While landscape visual impact is a controversy and thorny issue, because it lacks technological indicators and cannot be evaluated and mitigated quantitatively. Meanwhile, visual impact covers a wider range of spaces and receives widespread public attention. This paper researches landscape visual impact caused by wind farms from a social constructivist perspective, assuming that landscape aesthetic preference will influence the acceptance of local wind farm project. A comparison is conducted between two wind farms located in Germany and China. Based on landscape meaning originations, aesthetics theories and social background comparison between European and East Asian culture, the landscape visual impact thresholds are differentiated. It is a multidiscipline concept including visual perception physiology, psychology, sociology and can be understood as a constructed standard. This paper proposes a Dual-standard System: Basic and Floating visual impact thresholds. The basic threshold is based on the human visual physiology theory, which has universal limits (visual depth, visual breadth and dynamic recognition). Floating standard is an adjustable elastic indicator mechanism dealing with potential social factors like: financial investment, landscape aesthetics preference, regional economic development statues and background of stakeholders. The dual-standard system can propose constructive opinions for mitigating visual impacts in wind farm planning and construction.

Biography

Ms. Jinjin Guan is a PhD student from Geography Institute of Ruhr University Bochum in Germany. Her research program is "On-shore Wind Farm Planning and Landscape Protection", which aims to research the evaluation method for landscape visual impact in wind farm planning. She has set up a quantitative, modular evaluation model based on visual perception theories and landscape planning knowledge. This evaluation model can evaluate the landscape visual impact and provide scientific, quantitative guideline for decision-making in wind farm planning. She has landscape planning working experiences in Tongji Urban Planning and Research Institute in Shanghai before PhD program.

Notes:

Journal of Fundamentals of
Renewable Energy and Applications
ISSN: 2090-4541

Green Energy Congress 2019
Wind and Renewable Energy 2019
June 24-25, 2019

Volume 09

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