



The Energy Transition in between Profitability, Participation and Acceptance – Deployment of Renewable Energies considering the Interests of Project Developers, Residents, and Environmentalists

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The deployment of renewable energies has greatly profited from the advancement of Geographic Information Systems (GIS), as the provided tool and methods of analysis do not only facilitate and expedite the identification of suitable sites for wind and solar energy plants, moreover they drastically reduce the costs of project development for renewable energies. Not least, GIS technologies are outstandingly apt to synchronise the exploitation of energy potentials with land-use competition, e.g. nature protection, tourism, settlements, and transportation infrastructure. Furthermore, GIS enables participation. However, in the context of the energy transition, GIS technologies until now have only been used onesidedly, according to specific interests, so that a holistic perspective on optimal site structures of renewable energies has never been implemented in planning processes. Either, the information systems were only used to point out economically optimal sites in the course of entrepreneurial project development, while social factors, if ever, were taken into consideration only marginally and methodically superficial; or, on the other hand, citizens' initiatives and nature protection – who were rather interested in restricting the deployment of renewable energies – utilized GIS to selectively spotlight the energy transition's social and ecological dimensions, without in turn keeping an eye on the economic reality and societal aims regarding the deployment of renewable energies. Both attitudes were thoroughly unable to meet the requirements of balanced spatial planning in times of energy transformation, as it was never accomplished to equally consider economic, ecological, and social parameters. For this reason, the present study presents a new, innovative approach integrating the above mentioned relevant parameter concerning the deployment of wind and solar energy plants in Germany, thus helping to identify sites that are not only economically profitable, but also accepted by residents and environmentalists.