28 OCT. 2015
REINHARD MADLENER

Full Professor of Energy Economics and Management; Director, Institute of Future Energy Consumer Needs and Behavior (FCN), RWTH Aachen University

Spatial Economic and Multi-Criteria Analysis of the Optimal Siting of Wind Power Plants

Wind energy is one of the most important renewable energy sources in Germany, playing a key role regarding energy and climate policy targets of the German government. However, the further diffusion of wind farms involves strong spatial implications that refer to various adverse effects on landscape, noise level, and wildlife. Negative environmental impacts caused by the sometimes suboptimal siting of wind farms have induced an increasing gap between the social acceptance of this technology on the global and local levels. Particularly on the local level, siting processes of wind farm projects often trigger public protest. In our research, we take two distinct avenues. First, we use spatial econometric analysis to identify the impact of wind farms on property values, using a locally weighted hedonic pricing model. Second, in order to find the optimal locations for wind farm development and to improve the siting assessment by providing a holistic multi-criteria decision making approach that incorporates techno-economic, socio-political, and environmental criteria (using the Analytic Hierarchy Process, AHP), which are defined in a way that social acceptance-related issues are specifically emphasized. A group of local experts is asked to pairwise compare the incorporated criteria in order to derive the relative importance of each criterion, thus enabling the identification of those sites that are characterized by a combination of technical efficiency, economic feasibility, environment compatibility, and - no less important - local social acceptance.

Bio

Dr. Reinhard Madlener is a full professor of energy economics and management at the School of Business and Economics, RWTH Aachen University, Germany. His main research interests, on which he has published extensively over the last 20 years, are in the fields of energy economics and policy, sustainable energy systems, and the adoption, temporal and spatial diffusion, and financing of innovative energy technologies under uncertainty. The teaching activities of Professor Madlener are mainly in energy economics, environmental economics, economics of technological diffusion, and economics of technical change. He is Associate Editor of Energy Policy and currently on the Editorial Boards of the following international scientific journals: Applied Economics Quarterly; Applied Energy; Energy Efficiency; Energy Systems; Energy, Sustainability and Society; International Journal of Energy Sector Management; International Journal of Future Cities and Environment; Journal of Energy Storage; and Sustainable Cities and Society. Dr. Madlener is the founding director of the Institute for Future Energy Consumer Needs and Behavior (FCN), which is part of the interdisciplinary and integrated E.ON Energy Research Center established in late 2006 at RWTH Aachen University.

Carnegie Mellon University

Center for Climate and Energy Decision Making Seminars

28 October 2015
11:30am-12:30pm EDT

Baker Hall 129
Carnegie Mellon University

Lunch will be served at 11:20am. Seminar is presented under the auspices of CEDM and the department of Engineering and Public Policy.

CONNECT ONLINE VIA BLUE JEANS
https://bluejeans.com/815179990

VISIT CEDM ONLINE
www.cedmcenter.org