Zoning wind turbines to maximize societal benefits from wind energy: Economic considerations and environmental regulation

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Abstract:

Approximately 20% of global energy to date is coming from renewable sources. For many countries, energy from wind turbines has emerged as one of the most feasible, clean energy options as they move towards low-carbon economies. In Israel, however, energy from wind remains trivial, constituting only 1% of renewable electricity generated, which remains 3% of total electric generation. The proposed research seeks to answer fundamental questions about the feasibility of wind energy in Israel based on regulatory and economic analysis. The study will identify the scientific basis for present regulations around the world and specify how other countries resolve conflicts between the relevant competing environmental and sustainability objectives. The research is aimed to map optimal locations for wind turbines in Israel based on projected environmental impacts and constraints (e.g., noise; bird migrations, etc.) along with other cost considerations. With cost and benefit analysis, the research will draw an optimal national strategy for upgrading wind energy as part of national electricity generating capacity.